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SEQUENCE LISTING

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HIWASA, Takaki
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NOMURA, Fumio

<120> DIAGNOSTIC KIT FOR SOLID CANCER AND MEDICAMENT FOR SOLID CANCER THERAPY

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<141> 2006-09-29

<150> JP 2004-095732

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catttccaaa tgtggcctcc atgtgggtgc tagggacatg ggaaaaacca ctgctatgcc 1993
atttcttctc tctgttcctt tcctcacccc cgacgggtgtg gctgatgatg tcttctggtg 2053
tcatgggtgac caccctctgt tccctgttct ggtatttccc ctgtcagttt cccctctcgg 2113
ccaggttgtg tcccaaaatc ccctcagcct cttctctgca cgttgctgaa ggtccaggct 2173
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aaaaaaaaaa aaaaaaaaaa 2251

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<210> 6
<211> 459
<212> PRT
<213> Homo sapiens

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<400> 6
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Met Thr Ala Glu Glu Met Lys Ala Thr Glu Ser Gly Ala Gln Ser Ala
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Pro Leu Pro Met Glu Gly Val Asp Ile Ser Pro Lys Gln Asp Glu Gly
          20          25          30

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Val Leu Lys Val Ile Lys Arg Glu Gly Thr Gly Thr Glu Met Pro Met
          35          40          45

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```

Ile Gly Asp Arg Val Phe Val His Tyr Thr Gly Trp Leu Leu Asp Gly
          50          55          60

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```

Thr Lys Phe Asp Ser Ser Leu Asp Arg Lys Asp Lys Phe Ser Phe Asp
65          70          75          80

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Leu Gly Lys Gly Glu Val Ile Lys Ala Trp Asp Ile Ala Ile Ala Thr
          85          90          95

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Met Lys Val Gly Glu Val Cys His Ile Thr Cys Lys Pro Glu Tyr Ala
          100          105          110

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Tyr Gly Ser Ala Gly Ser Pro Pro Lys Ile Pro Pro Asn Ala Thr Leu
          115          120          125

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Val Phe Glu Val Glu Leu Phe Glu Phe Lys Gly Glu Asp Leu Thr Glu
          130          135          140

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Glu Glu Asp Gly Gly Ile Ile Arg Arg Ile Gln Thr Arg Gly Glu Gly
          145          150          155          160

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Tyr Ala Lys Pro Asn Glu Gly Ala Ile Val Glu Val Ala Leu Glu Gly
          165          170          175

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Tyr Tyr Lys Asp Lys Leu Phe Asp Gln Arg Glu Leu Arg Phe Glu Ile
180 185 190

Gly Glu Gly Glu Asn Leu Asp Leu Pro Tyr Gly Leu Glu Arg Ala Ile
195 200 205

Gln Arg Met Glu Lys Gly Glu His Ser Ile Val Tyr Leu Lys Pro Ser
210 215 220

Tyr Ala Phe Gly Ser Val Gly Lys Glu Lys Phe Gln Ile Pro Pro Asn
225 230 235 240

Ala Glu Leu Lys Tyr Glu Leu His Leu Lys Ser Phe Glu Lys Ala Lys
245 250 255

Glu Ser Trp Glu Met Asn Ser Glu Glu Lys Leu Glu Gln Ser Thr Ile
260 265 270

Val Lys Glu Arg Gly Thr Val Tyr Phe Lys Glu Gly Lys Tyr Lys Gln
275 280 285

Ala Leu Leu Gln Tyr Lys Lys Ile Val Ser Trp Leu Glu Tyr Glu Ser
290 295 300

Ser Phe Ser Asn Glu Glu Ala Gln Lys Ala Gln Ala Leu Arg Leu Ala
305 310 315 320

Ser His Leu Asn Leu Ala Met Cys His Leu Lys Leu Gln Ala Phe Ser
325 330 335

Ala Ala Ile Glu Ser Cys Asn Lys Ala Leu Glu Leu Asp Ser Asn Asn
340 345 350

Glu Lys Gly Leu Phe Arg Arg Gly Glu Ala His Leu Ala Val Asn Asp
355 360 365

Phe Glu Leu Ala Arg Ala Asp Phe Gln Lys Val Leu Gln Leu Tyr Pro
370 375 380

Asn Asn Lys Ala Ala Lys Thr Gln Leu Ala Val Cys Gln Gln Arg Ile
385 390 395 400

Arg Arg Gln Leu Ala Arg Glu Lys Lys Leu Tyr Ala Asn Met Phe Glu
405 410 415

Arg Leu Ala Glu Glu Glu Asn Lys Ala Lys Ala Glu Ala Ser Ser Gly
415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495

420

Asp His Pro Thr Asp Thr Glu Met Lys Glu Glu Gln Lys Ser Asn Thr
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Ala Gly Ser Gln Ser Gln Val Glu Thr Glu Ala
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Ala Ala Val Lys Thr Leu Asn Pro Lys Ala Glu Val Ala Arg Ala Gln
5 10 15

gcg gcg ctg gcg gtc aac atc agc gca gcg cgg ggt ctg cag gac gtg 154
Ala Ala Leu Ala Val Asn Ile Ser Ala Ala Arg Gly Leu Gln Asp Val
20 25 30

cta agg acc aac ctg ggg ccc aag ggc acc atg aag atg ctc gtt tct 202
Leu Arg Thr Asn Leu Gly Pro Lys Gly Thr Met Lys Met Leu Val Ser
35 40 45

ggc gct gga gac atc aaa ctt act aaa gac ggc aat gtg ctg ctt cac 250
Gly Ala Gly Asp Ile Lys Leu Thr Lys Asp Gly Asn Val Leu Leu His
50 55 60 65

gaa atg caa att caa cac cca aca gct tcc tta ata gca aag gta gca 298
Glu Met Gln Ile Gln His Pro Thr Ala Ser Leu Ile Ala Lys Val Ala
70 75 80

aca gcc cag gat gat ata act ggt gat ggt acg act tct aat gtc cta 346
Thr Ala Gln Asp Asp Ile Thr Gly Asp Gly Thr Thr Ser Asn Val Leu
85 90 95

atc att gga gag ctg ctg aaa cag gcg gat ctc tac att tct gaa ggc 394
Ile Ile Gly Glu Leu Leu Lys Gln Ala Asp Leu Tyr Ile Ser Glu Gly
100 105 110

ctt cat cct aga ata atc act gaa gga ttt gaa gct gca aag gaa aag 442
Leu His Pro Arg Ile Ile Thr Glu Gly Phe Glu Ala Ala Lys Glu Lys
115 120 125

gcc ctt cag ttt ttg gaa gaa gtc aaa gta agc aga gag atg gac agg 490
Ala Leu Gln Phe Leu Glu Glu Val Lys Val Ser Arg Glu Met Asp Arg
130 135 140 145

gaa aca ctt ata gat gtg gcc aga aca tct ctt cgt act aaa gtt cat 538

Glu	Thr	Leu	Ile	Asp 150	Val	Ala	Arg	Thr	Ser 155	Leu	Arg	Thr	Lys	Val 160	His	
gct	gaa	ctt	gca	gat	gtc	tta	aca	gag	gct	gta	gtg	gac	tcc	att	ttg	586
Ala	Glu	Leu	Ala 165	Asp	Val	Leu	Thr	Glu 170	Ala	Val	Val	Asp	Ser 175	Ile	Leu	
gcc	att	aaa	aag	caa	gat	gaa	cct	att	gat	ctc	ttc	atg	att	gag	atc	634
Ala	Ile	Lys 180	Lys	Gln	Asp	Glu	Pro 185	Ile	Asp	Leu	Phe	Met 190	Ile	Glu	Ile	
atg	gag	atg	aaa	cat	aaa	tct	gaa	act	gat	aca	agc	tta	atc	aga	ggg	682
Met	Glu 195	Met	Lys	His	Lys	Ser 200	Glu	Thr	Asp	Thr	Ser 205	Leu	Ile	Arg	Gly	
ctt	gtt	ttg	gac	cac	gga	gca	cgg	cat	cct	gat	atg	aag	aaa	agg	gtg	730
Leu 210	Val	Leu	Asp	His	Gly 215	Ala	Arg	His	Pro	Asp 220	Met	Lys	Lys	Arg	Val 225	
gag	gat	gca	tac	atc	ctc	act	tgt	aac	gtg	tca	tta	gag	tat	gag	aaa	778
Glu	Asp	Ala	Tyr	Ile 230	Leu	Thr	Cys	Asn	Val 235	Ser	Leu	Glu	Tyr	Glu 240	Lys	
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Thr	Glu	Val	Asn 245	Ser	Gly	Phe	Phe	Tyr 250	Lys	Ser	Ala	Glu	Glu 255	Arg	Glu	
aaa	ctc	gtg	aaa	gct	gaa	aga	aaa	ttc	att	gaa	gat	agg	gtt	aaa	aaa	874
Lys	Leu	Val 260	Lys	Ala	Glu	Arg	Lys 265	Phe	Ile	Glu	Asp	Arg 270	Val	Lys	Lys	
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Ile	Ile 275	Glu	Leu	Lys	Arg	Lys 280	Val	Cys	Gly	Asp	Ser 285	Asp	Lys	Gly	Phe	
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Val 290	Val	Ile	Asn	Gln	Lys 295	Gly	Ile	Asp	Pro	Phe 300	Ser	Leu	Asp	Ala	Leu 305	
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Ser	Lys	Glu	Gly	Ile 310	Val	Ala	Leu	Arg	Arg 315	Ala	Lys	Arg	Arg	Asn 320	Met	
gag	agg	ctg	act	ctt	gct	tgt	ggg	ggg	gta	gcc	ctg	aat	tct	ttt	gac	1066
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gac	cta	agt	cct	gac	tgc	ttg	gga	cat	gca	gga	ctt	gta	tat	gag	tat	1114
Asp	Leu	Ser 340	Pro	Asp	Cys	Leu	Gly 345	His	Ala	Gly	Leu	Val 350	Tyr	Glu	Tyr	
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cgt	tct	gtc	aca	tta	ttg	atc	aaa	gga	cca	aat	aag	cac	aca	ctc	act	1210
Arg 370	Ser	Val	Thr	Leu	Leu 375	Ile	Lys	Gly	Pro	Asn 380	Lys	His	Thr	Leu	Thr 385	
cag	atc	aaa	gat	gca	gtg	agg	gac	ggc	ttg	agg	gct	gtc	aaa	aat	gct	1258
Gln	Ile	Lys	Asp	Ala 390	Val	Arg	Asp	Gly	Leu 395	Arg	Ala	Val	Lys	Asn 400	Ala	

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cag ctt gga gtc caa gca ttt gct gat gca ttg ctc att att ccc aag Gln Leu Gly Val Gln Ala Phe Ala Asp Ala Leu Leu Ile Ile Pro Lys 435 440 445	1402
gtt ctt gct cag aac tct ggt ttt gac ctt cag gaa aca tta gtt aaa Val Leu Ala Gln Asn Ser Gly Phe Asp Leu Gln Glu Thr Leu Val Lys 450 455 460 465	1450
att caa gca gaa cat tca gaa tca ggt cag ctt gtg ggt gtg gac ctg Ile Gln Ala Glu His Ser Glu Ser Gly Gln Leu Val Gly Val Asp Leu 470 475 480	1498
aac aca ggt gag cca atg gtg gca gca gaa gta ggc gta tgg gat aac Asn Thr Gly Glu Pro Met Val Ala Ala Glu Val Gly Val Trp Asp Asn 485 490 495	1546
tat tgt gta aag aaa cag ctt ctt cac tcc tgc act gtg att gcc acc Tyr Cys Val Lys Lys Gln Leu Leu His Ser Cys Thr Val Ile Ala Thr 500 505 510	1594
aac att ctc ttg gtt gat gag atc atg cga gct gga atg tct tct ctg Asn Ile Leu Leu Val Asp Glu Ile Met Arg Ala Gly Met Ser Ser Leu 515 520 525	1642
aaa ggt tga attgaagctt cctctgtatc tgaatcttga agactgcaaa Lys Gly 530	1691
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attatagtat ttttaaaaaat tgcactgaag tgtatacaca taaagcaggt cttttatcca	1871
gtgaacagga tgttttgctt tagcagcagt gacataaaat tccatgttag ataagcatat	1931
gttacttacc ttgtttattaa atatttcttg aaaagcaa atttaatgggtt aatttttatgt	1991
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cttctgaact taaggcaaaa tattcatcgc aaagtctcta gcgtcatatt tttctcacc	2411
aaattacgtt tccacgagtt attatatata gttggtctat ctctgcagtc cttgaagggtg	2471
aagttgtgtg ttactaggct gtgtttttggg atgtcagcag tggcctgaag tgagttgtgc	2531

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 <212> PRT
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<400> 8

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Gln Ala Ala Leu Ala Val Asn Ile Ser Ala Ala Arg Gly Leu Gln Asp
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Val Leu Arg Thr Asn Leu Gly Pro Lys Gly Thr Met Lys Met Leu Val
 35 40 45

Ser Gly Ala Gly Asp Ile Lys Leu Thr Lys Asp Gly Asn Val Leu Leu
 50 55 60

His Glu Met Gln Ile Gln His Pro Thr Ala Ser Leu Ile Ala Lys Val
 65 70 75 80

Ala Thr Ala Gln Asp Asp Ile Thr Gly Asp Gly Thr Thr Ser Asn Val
 85 90 95

Leu Ile Ile Gly Glu Leu Leu Lys Gln Ala Asp Leu Tyr Ile Ser Glu
 100 105 110

Gly Leu His Pro Arg Ile Ile Thr Glu Gly Phe Glu Ala Ala Lys Glu
 115 120 125

Lys Ala Leu Gln Phe Leu Glu Glu Val Lys Val Ser Arg Glu Met Asp
 130 135 140

Arg Glu Thr Leu Ile Asp Val Ala Arg Thr Ser Leu Arg Thr Lys Val
 145 150 155 160

His Ala Glu Leu Ala Asp Val Leu Thr Glu Ala Val Val Asp Ser Ile
 165 170 175

Leu Ala Ile Lys Lys Gln Asp Glu Pro Ile Asp Leu Phe Met Ile Glu
 180 185 190

Ile Met Glu Met Lys His Lys Ser Glu Thr Asp Thr Ser Leu Ile Arg
 195 200 205

Gly Leu Val Leu Asp His Gly Ala Arg His Pro Asp Met Lys Lys Arg
 210 215 220

Val Glu Asp Ala Tyr Ile Leu Thr Cys Asn Val Ser Leu Glu Tyr Glu
 225 230 235 240

Lys Thr Glu Val Asn Ser Gly Phe Phe Tyr Lys Ser Ala Glu Glu Arg
 245 250 255

Glu Lys Leu Val Lys Ala Glu Arg Lys Phe Ile Glu Asp Arg Val Lys
 260 265 270

Lys Ile Ile Glu Leu Lys Arg Lys Val Cys Gly Asp Ser Asp Lys Gly
 275 280 285

Phe Val Val Ile Asn Gln Lys Gly Ile Asp Pro Phe Ser Leu Asp Ala
 290 295 300

Leu Ser Lys Glu Gly Ile Val Ala Leu Arg Arg Ala Lys Arg Arg Asn
 305 310 315 320

Met Glu Arg Leu Thr Leu Ala Cys Gly Gly Val Ala Leu Asn Ser Phe
 325 330 335

Asp Asp Leu Ser Pro Asp Cys Leu Gly His Ala Gly Leu Val Tyr Glu
 340 345 350

Tyr Thr Leu Gly Glu Glu Lys Phe Thr Phe Ile Glu Lys Cys Asn Asn
 355 360 365

Pro Arg Ser Val Thr Leu Leu Ile Lys Gly Pro Asn Lys His Thr Leu
 370 375 380

Thr Gln Ile Lys Asp Ala Val Arg Asp Gly Leu Arg Ala Val Lys Asn
 385 390 395 400

Ala Ile Asp Asp Gly Cys Val Val Pro Gly Ala Gly Ala Val Glu Val
 405 410 415

Ala Met Ala Glu Ala Leu Ile Lys His Lys Pro Ser Val Lys Gly Arg
 420 425 430

Ala Gln Leu Gly Val Gln Ala Phe Ala Asp Ala Leu Leu Ile Ile Pro
 435 440 445

Lys Val Leu Ala Gln Asn Ser Gly Phe Asp Leu Gln Glu Thr Leu Val
 450 455 460

Lys Ile Gln Ala Glu His Ser Glu Ser Gly Gln Leu Val Gly Val Asp
465 470 475 480

Leu Asn Thr Gly Glu Pro Met Val Ala Ala Glu Val Gly Val Trp Asp
485 490 495

Asn Tyr Cys Val Lys Lys Gln Leu Leu His Ser Cys Thr Val Ile Ala
500 505 510

Thr Asn Ile Leu Leu Val Asp Glu Ile Met Arg Ala Gly Met Ser Ser
515 520 525

Leu Lys Gly
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<222> (230)..(1486)

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agcgggctaa gagtagaatc gtgtcgcggc tcgagagcga gagtcacgtc ccggcgctag 180
cccagcccga cccaggccca ccgtggtgca cgcaaaccac ttcctggcc atg cgc tcc 238
Met Arg Ser
1

ctc ctg ctt ctc agc gcc ttc tgc ctc ctg gag gcg gcc ctg gcc gcc 286
Leu Leu Leu Leu Ser Ala Phe Cys Leu Leu Glu Ala Ala Leu Ala Ala
5 10 15

gag gtg aag aaa cct gca gcc gca gca gct cct ggc act gcg gag aag 334
Glu Val Lys Lys Pro Ala Ala Ala Ala Ala Pro Gly Thr Ala Glu Lys
20 25 30 35

ttg agc ccc aag gcg gcc acg ctt gcc gag cgc agc gcc ggc ctg gcc 382
Leu Ser Pro Lys Ala Ala Thr Leu Ala Glu Arg Ser Ala Gly Leu Ala
40 45 50

ttc agc ttg tac cag gcc atg gcc aag gac cag gca gtg gag aac atc 430
Phe Ser Leu Tyr Gln Ala Met Ala Lys Asp Gln Ala Val Glu Asn Ile
55 60 65

ctg gtg tca ccc gtg gtg gtg gcc tcg tcg cta ggg ctc gtg tcg ctg 478
Leu Val Ser Pro Val Val Val Ala Ser Ser Leu Gly Leu Val Ser Leu
70 75 80

ggc ggc aag gcg acc acg gcg tcg cag gcc aag gca gtg ctg agc gcc 526

Gly	Gly	Lys	Ala	Thr	Thr	Ala	Ser	Gln	Ala	Lys	Ala	Val	Leu	Ser	Ala	
85						90					95					
gag	cag	ctg	cgc	gac	gag	gag	gtg	cac	gcc	ggc	ctg	ggc	gag	ctg	ctg	574
Glu	Gln	Leu	Arg	Asp	Glu	Glu	Val	His	Ala	Gly	Leu	Gly	Glu	Leu	Leu	
100					105					110					115	
cgc	tca	ctc	agc	aac	tcc	acg	gcg	cgc	aac	gtg	acc	tgg	aag	ctg	ggc	622
Arg	Ser	Leu	Ser	Asn	Ser	Thr	Ala	Arg	Asn	Val	Thr	Trp	Lys	Leu	Gly	
				120					125					130		
agc	cga	ctg	tac	gga	ccc	agc	tca	gtg	agc	ttc	gct	gat	gac	ttc	gtg	670
Ser	Arg	Leu	Tyr	Gly	Pro	Ser	Ser	Val	Ser	Phe	Ala	Asp	Asp	Phe	Val	
			135					140					145			
cgc	agc	agc	aag	cag	cac	tac	aac	tgc	gag	cac	tcc	aag	atc	aac	ttc	718
Arg	Ser	Ser	Lys	Gln	His	Tyr	Asn	Cys	Glu	His	Ser	Lys	Ile	Asn	Phe	
		150					155					160				
cgc	gac	aag	cgc	agc	gcg	ctg	cag	tcc	atc	aac	gag	tgg	gcc	gcg	cag	766
Arg	Asp	Lys	Arg	Ser	Ala	Leu	Gln	Ser	Ile	Asn	Glu	Trp	Ala	Ala	Gln	
	165					170					175					
acc	acc	gac	ggc	aag	ctg	ccc	gag	gtc	acc	aag	gac	gtg	gag	cgc	acg	814
Thr	Thr	Asp	Gly	Lys	Leu	Pro	Glu	Val	Thr	Lys	Asp	Val	Glu	Arg	Thr	
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Asp	Gly	Ala	Leu	Leu	Val	Asn	Ala	Met	Phe	Phe	Lys	Pro	His	Trp	Asp	
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Glu	Lys	Phe	His	His	Lys	Met	Val	Asp	Asn	Arg	Gly	Phe	Met	Val	Thr	
			215					220					225			
cgg	tcc	tat	acc	gtg	ggt	gtc	atg	atg	atg	cac	cgg	aca	ggc	ctc	tac	958
Arg	Ser	Tyr	Thr	Val	Gly	Val	Met	Met	Met	His	Arg	Thr	Gly	Leu	Tyr	
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Asn	Tyr	Tyr	Asp	Asp	Glu	Lys	Glu	Lys	Leu	Gln	Ile	Val	Glu	Met	Pro	
	245					250					255					
ctg	gcc	cac	aag	ctc	tcc	agc	ctc	atc	atc	ctc	atg	ccc	cat	cac	gtg	1054
Leu	Ala	His	Lys	Leu	Ser	Ser	Leu	Ile	Ile	Leu	Met	Pro	His	His	Val	
260					265					270					275	
gag	cct	ctc	gag	cgc	ctt	gaa	aag	ctg	cta	acc	aaa	gag	cag	ctg	aag	1102
Glu	Pro	Leu	Glu	Arg	Leu	Glu	Lys	Leu	Leu	Thr	Lys	Glu	Gln	Leu	Lys	
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atc	tgg	atg	ggg	aag	atg	cag	aag	aag	gct	gtt	gcc	atc	tcc	ttg	ccc	1150
Ile	Trp	Met	Gly	Lys	Met	Gln	Lys	Lys	Ala	Val	Ala	Ile	Ser	Leu	Pro	
			295					300					305			
aag	ggt	gtg	gtg	gag	gtg	acc	cat	gac	ctg	cag	aaa	cac	ctg	gct	ggg	1198
Lys	Gly	Val	Val	Glu	Val	Thr	His	Asp	Leu	Gln	Lys	His	Leu	Ala	Gly	
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ctg	ggc	ctg	act	gag	gcc	att	gac	aag	aac	aag	gcc	gac	ttg	tca	cgc	1246
Leu	Gly	Leu	Thr	Glu	Ala	Ile	Asp	Lys	Asn	Lys	Ala	Asp	Leu	Ser	Arg	
	325					330					335					

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atg tca ggc aag aag gac ctg tac ctg gcc agc gtg ttc cac gcc acc 1294
Met Ser Gly Lys Lys Asp Leu Tyr Leu Ala Ser Val Phe His Ala Thr
340 345 350 355

gcc ttt gag ttg gac aca gat ggc aac ccc ttt gac cag gac atc tac 1342
Ala Phe Glu Leu Asp Thr Asp Gly Asn Pro Phe Asp Gln Asp Ile Tyr
360 365 370

ggg cgc gag gag ctg cgc agc ccc aag ctg ttc tac gcc gac cac ccc 1390
Gly Arg Glu Glu Leu Arg Ser Pro Lys Leu Phe Tyr Ala Asp His Pro
375 380 385

ttc atc ttc cta gtg cgg gac acc caa agc ggc tcc ctg cta ttc att 1438
Phe Ile Phe Leu Val Arg Asp Thr Gln Ser Gly Ser Leu Leu Phe Ile
390 395 400

ggg cgc ctg gtc cgg cct aag ggt gac aag atg cga gac gag tta tag 1486
Gly Arg Leu Val Arg Pro Lys Gly Asp Lys Met Arg Asp Glu Leu
405 410 415

ggcctcaggg tgcacacagg atggcaggag gcatccaaag gctcctgaga cacatgggtg 1546
ctattgggggt tggggggggag gtgaggtacc agccttgat actccatggg gtgggggtgg 1606
aaaaacagac cgggggttccc gtgtgcctga gcggaccttc ccagctagaa ttcactccac 1666
ttggacatgg gccccagata ccatgatgct gagcccggaa actccacatc ctgtgggacc 1726
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caactataaa actaggtgct gcagcccctg ggaccaggca ccccagaat gacctggccg 1966
cagtgaggcg gattgagaag gagctcccag gaggggcttc tgggcagact ctggtcaaga 2026
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<211> 418
<212> PRT
<213> Homo sapiens

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Ala Glu Lys Leu Ser Pro Lys Ala Ala Thr Leu Ala Glu Arg Ser Ala
Page 19

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Leu Ser Ala Glu Gln Leu Arg Asp Glu Glu Val His Ala Gly Leu Gly
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Lys Leu Gly Ser Arg Leu Tyr Gly Pro Ser Ser Val Ser Phe Ala Asp
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Ile Asn Phe Arg Asp Lys Arg Ser Ala Leu Gln Ser Ile Asn Glu Trp
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Ala Ala Gln Thr Thr Asp Gly Lys Leu Pro Glu Val Thr Lys Asp Val
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Glu Arg Thr Asp Gly Ala Leu Leu Val Asn Ala Met Phe Phe Lys Pro
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His Trp Asp Glu Lys Phe His His Lys Met Val Asp Asn Arg Gly Phe
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Met Val Thr Arg Ser Tyr Thr Val Gly Val Met Met Met His Arg Thr
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Gly Leu Tyr Asn Tyr Tyr Asp Asp Glu Lys Glu Lys Leu Gln Ile Val
 245 250 255

Glu Met Pro Leu Ala His Lys Leu Ser Ser Leu Ile Ile Leu Met Pro
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His His Val Glu Pro Leu Glu Arg Leu Glu Lys Leu Leu Thr Lys Glu
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Gln Leu Lys Ile Trp Met Gly Lys Met Gln Lys Lys Ala Val Ala Ile
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Ser Leu Pro Lys Gly Val Val Glu Val Thr His Asp Leu Gln Lys His
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ccc ctt cag ctg cac acc ggg gcc agc cat gcg gcc agg aac cat tat 208
Pro Leu Gln Leu His Thr Gly Ala Ser His Ala Ala Arg Asn His Tyr
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Glu Val Leu Val Leu Gly Gly Gly Ser Gly Gly Ile Thr Met Ala Ala

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Gly Ile Gly Asp Cys Thr Asn Leu Pro Thr Ser Lys Thr Ala Ala Ala
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Phe His Leu Gly Met Ser
445 450

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Leu Gly Gly Gly Ser Gly Gly Ile Thr Met Ala Ala Arg Met Lys Arg
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Lys Val Gly Ala Glu Asn Val Ala Ile Val Glu Pro Ser Glu Arg His
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Thr Phe Pro Asn Thr Pro Val Lys Cys Ala Gly Ala Pro Gln Lys Ile
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Tyr Asn Arg Val Ile Leu Ala Glu Phe Asp Tyr Lys Ala Glu Pro Leu
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Asp	Glu	Asp	Phe	Met	Glu	Val	Val	Leu	Gly	Lys	Leu	Asp	Pro	Gln	Lys		
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Ala	Phe	Phe	Ser	Gly	Arg	Leu	Lys	Ala	Arg	Gly	Asn	Ile	Met	Leu	Ser		
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Arg Ile Ile Met Thr Ser Ser Ala Ser Gly Ile Tyr Gly Asn Phe Gly
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Gln Ala Asn Tyr Ser Ala Ala Lys Leu Gly Leu Leu Gly Leu Ala Asn
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Ser Leu Ala Ile Glu Gly Arg Lys Ser Asn Ile His Cys Asn Thr Ile
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Pro Gln Lys Ala Phe Phe Ser Gly Arg Leu Lys Ala Arg Gly Asn Ile
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Lys Leu Asp Pro His Asn His Val Leu Tyr Ser Asn Arg Ser Ala Ala
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Tyr Ala Lys Lys Gly Asp Tyr Gln Lys Ala Tyr Glu Asp Gly Cys Lys
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Arg Thr Leu Leu Ser Asp Pro Thr Tyr Arg Glu Leu Ile Glu Gln Leu
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 Page 34

35

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Gln Lys Ile Gln Lys Leu Met Asp Val Gly Leu Ile Ala Ile Arg
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•

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740

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Thr Ala Arg Leu Ala Ser Leu Met Asn Leu Gly Met Ser Ser Ser Leu
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His Asn Leu Gln Ser Ile Phe Asn Ile Gly Ser Arg Gly Pro Leu Pro
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Ala Ser Phe Gly Leu Ser Ala Arg Asp Leu Asp Glu Leu Ser Arg Tyr
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Pro Glu Asp Lys Ile Thr Pro Glu Asn Leu Pro Gln Ile Leu Leu Gln
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Asp Trp Glu Glu Lys Arg His Phe Arg Arg Asp Ser Phe Asp Asp Arg
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Gly Pro Ser Leu Asn Pro Val Leu Asp Tyr Asp His Gly Ser Arg Ser
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Gln Glu Ser Gly Tyr Tyr Asp Arg Met Asp Tyr Glu Asp Asp Arg Leu
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Arg Asp Gly Glu Arg Cys Arg Asp Asp Ser Phe Phe Gly Glu Thr Ser
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His Asn Tyr His Lys Phe Asp Ser Glu Tyr Glu Arg Met Gly Arg Gly
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Pro Gly Pro Leu Gln Glu Arg Ser Leu Phe Glu Lys Lys Arg Gly Ala
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Pro Pro Ser Ser Asn Ile Glu Asp Phe His Gly Leu Leu Pro Lys Gly
275         280         285

Tyr Pro His Leu Cys Ser Ile Cys Asp Leu Pro Val His Ser Asn Lys
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Glu Trp Ser Gln His Ile Asn Gly Ala Ser His Ser Arg Arg Cys Gln
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His Thr Met Gly Asp Pro Phe Met Leu Gln Gln Ser Thr Asn Pro Ala
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Pro Gly Ile Leu Gly Pro Pro Pro Ser Phe His Leu Gly Gly Pro
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Ala Val Gly Pro Arg Gly Asn Leu Gly Ala Gly Asn Gly Asn Leu Gln
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Gly Pro Arg His Met Gln Lys Gly Arg Val Glu Thr Ser Arg Val Val
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His Ile Met Asp Phe Gln Arg Gly Lys Asn Leu Arg Tyr Gln Leu Leu
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Gln Leu Val Glu Pro Phe Gly Val Ile Ser Asn His Leu Ile Leu Asn
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Lys Ile Asn Glu Ala Phe Ile Glu Met Ala Thr Thr Glu Asp Ala Gln
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Pro Val Arg Val His Leu Ser Gln Lys Tyr Lys Arg Ile Lys Lys Pro
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Glu Gly Lys Pro Asp Gln Lys Phe Asp Gln Lys Gln Glu Leu Gly Arg
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Val Ile His Leu Ser Asn Leu Pro His Ser Gly Tyr Ser Asp Ser Ala
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Ala Met Ala Met Val Asp His Cys Leu Lys Lys Ala Leu Trp Phe Gln
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Gly Arg Cys Val Lys Val Asp Leu Ser Glu Lys Tyr Lys Lys Leu Val
 Page 55

565

570

575

Leu Arg Ile Pro Asn Arg Gly Ile Asp Leu Leu Lys Lys Asp Lys Ser
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Arg Lys Arg Ser Tyr Ser Pro Asp Gly Lys Glu Ser Pro Ser Asp Lys
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Lys Ser Lys Thr Asp Gly Ser Gln Lys Thr Glu Ser Ser Thr Glu Gly
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Ser Asp Gly Lys Lys Glu Pro Ser Asp Lys Ala Val Lys Lys Asp Gly
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Ser Ala Ser Ala Ala Ala Lys Lys Lys Leu Lys Lys Val Asp Lys Ile
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Glu Glu Leu Asp Gln Glu Asn Glu Ala Ala Leu Glu Asn Gly Ile Lys
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Gln Pro Asn Val Pro Val Gly Ile Asp Tyr Val Ile Pro Lys Thr Gly
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 Ser Asn Ala Gln Arg Gln Leu Ile Val Lys Glu Tyr Gln Ala Ala Tyr
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 Gly Lys Glu Leu Lys Asp Asp Leu Lys Gly Asp Leu Ser Gly His Phe
 65 70 75 80
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 Lys Gln Leu Lys Lys Ser Met Lys Gly Ala Gly Thr Asn Glu Asp Ala
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 Leu Ile Glu Ile Leu Thr Thr Arg Thr Ser Arg Gln Met Lys Asp Ile
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 Ser Gln Ala Tyr Tyr Thr Val Tyr Lys Lys Ser Leu Gly Asp Asp Ile
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 Ser Ser Glu Thr Ser Gly Asp Phe Arg Lys Ala Leu Leu Thr Leu Ala
 145 150 155 160
 Asp Gly Arg Arg Asp Glu Ser Leu Lys Val Asp Glu His Leu Ala Lys
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 Gln Asp Ala Gln Ile Leu Tyr Lys Ala Gly Glu Asn Arg Trp Gly Thr
 180 185 190
 Asp Glu Asp Lys Phe Thr Glu Ile Leu Cys Leu Arg Ser Phe Pro Gln
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 Leu Lys Leu Thr Phe Asp Glu Tyr Arg Asn Ile Ser Gln Lys Asp Ile
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 Val Asp Ser Ile Lys Gly Glu Leu Ser Gly His Phe Glu Asp Leu Leu
 225 230 235 240
 Leu Ala Ile Val Asn Cys Val Arg Asn Thr Pro Ala Phe Leu Ala Glu
 245 250 255
 Arg Leu His Arg Ala Leu Lys Gly Ile Gly Thr Asp Glu Phe Thr Leu
 260 265 270

Asn Arg Ile Met Val Ser Arg Ser Glu Ile Asp Leu Leu Asp Ile Arg
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Met Ala His Gln Thr Gly Ile
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cac gcc acg gaa gag ctg aag gaa ttc ttt gcc aag gca cgg gct ggc 220
His Ala Thr Glu Glu Leu Lys Glu Phe Phe Ala Lys Ala Arg Ala Gly
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Ser Val Arg Leu Ile Lys Val Val Ile Glu Asp Glu Gln Leu Val Leu
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Gly Ala Ser Gln Glu Pro Val Gly Arg Trp Asp Gln Asp Tyr Asp Arg
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Ala Val Leu Pro Leu Leu Asp Ala Gln Gln Pro Cys Tyr Leu Leu Tyr
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Arg Leu Asp Ser Gln Asn Ala Gln Gly Phe Glu Trp Leu Phe Leu Ala
75 80 85

tgg tcg cct gat aac tcc ccc gtg cgg ctg aag atg ctg tac gcg gcc 460
Trp Ser Pro Asp Asn Ser Pro Val Arg Leu Lys Met Leu Tyr Ala Ala
90 95 100

acg cgg gcc aca gtg aaa aag gag ttt gga ggt ggc cac atc aag gat 508
Thr Arg Ala Thr Val Lys Lys Glu Phe Gly Gly Gly His Ile Lys Asp
Page 60

105	110	115	
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Phe Glu Trp Leu Phe Leu Ala Trp Ser Pro Asp Asn Ser Pro Val Arg
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Leu Lys Gln Lys Met Val Asn Tyr Ile Gln Met Lys Leu Asp Leu Glu
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Leu Pro Ser Arg Val Pro Arg Asp Ala Ala Arg Tyr His Phe Phe Leu
225 230 235 240

Tyr Lys His Thr His Glu Gly Asp Pro Leu Glu Ser Val Val Phe Ile
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Tyr Ser Met Pro Gly Tyr Lys Cys Ser Ile Lys Glu Arg Met Leu Tyr
260 265 270

Ser Ser Cys Lys Ser Arg Leu Leu Asp Ser Val Glu Gln Asp Phe His
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cca Pro 25	gac Asp	atc Ile	cga Arg	acc Thr	aag Lys 30	gac Asp	att Ile	gag Glu	gac Asp	gtg Val 35	ttc Phe	tac Tyr	aaa Lys	tac Tyr	ggc Gly 40	210
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cct Pro 90	cga Arg	agc Ser	ggc Gly	cgt Arg	gga Gly	aca Thr 95	ggc Gly	cga Arg	ggc Gly	ggc Gly	ggc Gly 100	ggg Gly	ggt Gly	gga Gly	ggt Gly	402
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 35 40 45

Asn Arg Arg Gly Gly Pro Pro Phe Ala Phe Val Glu Phe Glu Asp Pro
 50 55 60

Arg Asp Ala Glu Asp Ala Val Tyr Gly Arg Asp Gly Tyr Asp Tyr Asp
 65 70 75 80

Gly Tyr Arg Leu Arg Val Glu Phe Pro Arg Ser Gly Arg Gly Thr Gly
 85 90 95

Arg Gly Gly Gly Gly Gly Gly Gly Gly Ala Pro Arg Gly Arg Tyr
 100 105 110

Gly Pro Pro Ser Arg Arg Ser Glu Asn Arg Val Val Val Ser Gly Leu
 115 120 125

Pro Pro Ser Gly Ser Trp Gln Asp Leu Lys Asp His Met Arg Glu Ala
 130 135 140

Gly Asp Val Cys Tyr Ala Asp Val Tyr Arg Asp Gly Thr Gly Val Val
 145 150 155 160

Glu Phe Val Arg Lys Glu Asp Met Thr Tyr Ala Val Arg Lys Leu Asp
 165 170 175

Asn Thr Lys Phe Arg Ser His Glu Gly Glu Thr Ala Tyr Ile Arg Val
 180 185 190

Lys Val Asp Gly Pro Arg Ser Pro Ser Tyr Gly Arg Ser Arg Ser Arg
 195 200 205

Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Asn Ser Arg Ser Arg
 Page 66

210

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His Ser Arg Ser Arg Ser Arg Thr
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Met Val His Gln Val Leu Tyr Arg Ala Leu Val Ser Thr
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aag tgg ctg gcg gag tcc atc agg act ggc aag ctg ggg ccc ggc ctg 159
Lys Trp Leu Ala Glu Ser Ile Arg Thr Gly Lys Leu Gly Pro Gly Leu
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cgg gtg ctg gac gcg tcc tgg tac tca cca ggc acc cga gag gcc cgc 207
Arg Val Leu Asp Ala Ser Trp Tyr Ser Pro Gly Thr Arg Glu Ala Arg
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aag gag tac ctc gag cgc cac gta ccc ggc gcc tct ttc ttt gac ata 255
Lys Glu Tyr Leu Glu Arg His Val Pro Gly Ala Ser Phe Phe Asp Ile
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gaa gag tgc cgg gac acg gcg tcg ccc tac gag atg atg ctg ccc agc 303
Glu Glu Cys Arg Asp Thr Ala Ser Pro Tyr Glu Met Met Leu Pro Ser
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Thr His Val Val Val Tyr Asp Gly Glu His Leu Gly Ser Phe Tyr Ala
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Pro Arg Val Trp Trp Met Phe Arg Val Phe Gly His Arg Thr Val Ser
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Val Leu Asn Gly Gly Phe Arg Asn Trp Leu Lys Glu Gly His Pro Val
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aca tcc gag ccc tca cgc cca gaa ccg gcc gtc ttc aaa gcc aca ctg 543
Thr Ser Glu Pro Ser Arg Pro Glu Pro Ala Val Phe Lys Ala Thr Leu
145 150 155

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Leu Glu Arg His Val Pro Gly Ala Ser Phe Phe Asp Ile Glu Glu Cys
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 Arg Asp Thr Ala Ser Pro Tyr Glu Met Met Leu Pro Ser Glu Ala Gly
 65 70 75 80
 Phe Ala Glu Tyr Val Gly Arg Leu Gly Ile Ser Asn His Thr His Val
 85 90 95
 Val Val Tyr Asp Gly Glu His Leu Gly Ser Phe Tyr Ala Pro Arg Val
 100 105 110
 Trp Trp Met Phe Arg Val Phe Gly His Arg Thr Val Ser Val Leu Asn
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 Gly Gly Phe Arg Asn Trp Leu Lys Glu Gly His Pro Val Thr Ser Glu
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 Pro Ser Arg Pro Glu Pro Ala Val Phe Lys Ala Thr Leu Asp Arg Ser
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 Gly Pro Glu Glu Leu Arg Ala Leu Phe Gln Thr Lys Lys Val Asp Leu
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 245 250 255
 Val Ala Leu Ala Ala Tyr Leu Cys Gly Lys Pro Asp Val Ala Val Tyr
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Lys Ala Leu Asp Ile Ala Glu Asn Glu Met Pro Gly Leu Met Arg Met
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Arg Glu Arg Tyr Ser Ala Ser Lys Pro Leu Lys Gly Ala Arg Ile Ala
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Gly Cys Leu His Met Thr Val Glu Thr Ala Val Leu Ile Glu Thr Leu
55 60 65

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Val Thr Leu Gly Ala Glu Val Gln Trp Ser Ser Cys Asn Ile Phe Ser
70 75 80

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Thr Gln Asp His Ala Ala Ala Ala Ile Ala Lys Ala Gly Ile Pro Val
85 90 95

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Tyr Ala Trp Lys Gly Glu Thr Asp Glu Glu Tyr Leu Trp Cys Ile Glu
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Leu Tyr Lys Met Met Ala Asn Gly Ile Leu Lys Val Pro Ala Ile Asn
165 170 175

gtc aat gac tcc gtc acc aag agc aag ttt gac aac ctc tat ggc tgc 632
Page 70

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2007-06-23 1254-0326PUS1.ST251

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Cys Ile Glu Gln Thr Leu Tyr Phe Lys Asp Gly Pro Leu Asn Met Ile
Page 72

115

Leu Asp Asp Gly Gly Asp Leu Thr Asn Leu Ile His Thr Lys Tyr Pro
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Val His Asn Leu Tyr Lys Met Met Ala Asn Gly Ile Leu Lys Val Pro
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Gln Met Lys Asp Asp Ala Ile Val Cys Asn Ile Gly His Phe Asp Val
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Glu Ile Asp Val Lys Trp Leu Asn Glu Asn Ala Val Glu Lys Val Asn
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325 330 335

Ile Leu Leu Ala Glu Gly Arg Leu Val Asn Leu Gly Cys Ala Met Gly
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Ile Glu His Leu Tyr Lys Asn Pro Gln Ala His Ile Glu Gly Asn Met
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Lys Leu His Tyr Gly Asp Leu Thr Asp Ser Thr Cys Leu Val Lys Ile
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Ile Asn Glu Val Lys Pro Thr Glu Ile Tyr Asn Leu Gly Ala Gln Ser
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His Val Lys Ile Ser Phe Asp Leu Ala Glu Tyr Thr Ala Asp Val Asp
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2007-06-23 1254-0326PUS1.ST251

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Arg Ser Val Ala Lys Ile Tyr Leu Gly Gln Leu Glu Cys Phe Ser Leu
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Ser Ala Leu Leu Thr Arg Thr His Ile Asn Tyr Gly Val Lys Gly Asp
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Val Ala Val Val Arg Ile Asn Ser Pro Asn Ser Lys Val Asn Thr Leu
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Gly Leu Lys Gln Gly Lys Val Ile Ile Val Val Lys Asp Gly Pro Gly
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Lys Gly Phe Leu Gly Arg Lys Ser Gly Lys Gly Phe Tyr Ile Tyr Gln
625 630 635 640

Glu Gly Val Lys Arg Lys Asp Leu Asn Ser Asp Met Asp Ser Ile Leu
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Ala Ser Leu Lys Leu Pro Pro Lys Ser Glu Val Ser Ser Asp Glu Asp
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Val Asp Leu Tyr Gly Ala Gln Lys Ile Val Asp Arg Leu Lys Lys Tyr
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Gln Lys Ala Val Lys Asp Glu Leu	
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2007-06-23 1254-0326PUS1.ST251

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Val Lys Val Leu Val Gly Lys Asn Phe Glu Asp Val Ala Phe Asp Glu
370 375 380

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Lys Gln Leu Ala Pro Ile Trp Asp Lys Leu Gly Glu Thr Tyr Lys Asp
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His Glu Asn Ile Val Ile Ala Lys Met Asp Ser Thr Ala Asn Glu Val
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Glu Ala Val Lys Val His Ser Phe Pro Thr Leu Lys Phe Phe Pro Ala
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Ser Ala Asp Arg Thr Val Ile Asp Tyr Asn Gly Glu Arg Thr Leu Asp
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Gly Phe Lys Lys Phe Leu Glu Ser Gly Gly Gln Asp Gly Ala Gly Asp
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Leu Val Gly Gly Ala Gly Gly Gln Ser Ala Ala Ala Ala Ala Arg Arg
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Cys Ser Glu Gly Glu Trp Ala Ser Gly Gly Val Arg Ser Phe Ser Arg

Page 89

35																	
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2007-06-23 1254-0326PUS1.ST251

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Cys Ser Glu Gly Glu Trp Ala Ser Gly Gly Val Arg Ser Phe Ser Arg
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Ala Ala Ala Ala Met Ala Pro Ile Lys Val Gly Asp Ala Ile Pro Ala
50 55 60

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Thr Pro Gly Cys Ser Lys Thr His Leu Pro Gly Phe Val Glu Gln Ala
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Gly Lys Val Arg Leu Leu Ala Asp Pro Thr Gly Ala Phe Gly Lys Glu
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Arg Leu Lys Arg Phe Ser Met Val Val Gln Asp Gly Ile Val Lys Ala
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          35          40          45

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Leu Leu Thr Gly Gly Gly Glu Met Leu Leu Asn Val Ala Leu Val Ala
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Gly Leu Gly Ala Gly Ala Gly Ala Gly Glu Glu Ser Pro Ala Thr Ser
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Cys Leu Asp Lys Asp Ala Leu Arg Asp Glu Tyr Asp Asp Leu Ser Asp
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2007-06-23 1254-0326PUS1.ST251

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Thr Gly Gly Gly Glu Met Leu Leu Asn Val Ala Leu Val Ala Leu Val
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Leu Leu Gly Ala Tyr Arg Leu Trp Val Arg Trp Gly Arg Arg Gly Leu
Page 93

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Lys Lys Lys Arg Gly Arg Ala Thr Asp Ser Phe Ser Gly Arg Phe Glu
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Leu Asp Phe Leu His Asn Lys Gly Ile Ala His Arg Asp Leu Lys Pro
 195 200 205

Glu Asn Ile Leu Cys Glu His Pro Asn Gln Val Ser Pro Val Lys Ile
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Cys Asp Phe Asp Leu Gly Ser Gly Ile Lys Leu Asn Gly Asp Cys Ser
 Page 98


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tct aat gaa gcc agc act gtg agt ggt gaa aac gat gta tct ctt gat Ser Asn Glu Ala Ser Thr Val Ser Gly Glu Asn Asp Val Ser Leu Asp 115 120 125	803
gaa aca tct tcg aac gca tcc tgt tct aca gaa tct cag agt cga cct Glu Thr Ser Ser Asn Ala Ser Cys Ser Thr Glu Ser Gln Ser Arg Pro 130 135 140	851
ctt tcc aat ccc agg gac agc tac aga gct tcc tca cag gcg aac aaa Leu Ser Asn Pro Arg Asp Ser Tyr Arg Ala Ser Ser Gln Ala Asn Lys 145 150 155 160	899
caa aag aaa aag act ggg gtg atg ctg cct cga gtt gtc ctg act cct Gln Lys Lys Lys Thr Gly Val Met Leu Pro Arg Val Val Leu Thr Pro 165 170 175	947
ctg aag gta aac ggg gcc cac gtg gaa tct gca tca ggg ttc tcg ggc Leu Lys Val Asn Gly Ala His Val Glu Ser Ala Ser Gly Phe Ser Gly 180 185 190	995
tgc cac gcc gat ggc gag agc ggc agc ccg tcc agc agc agc agc ggc	1043

Cys	His	Ala 195	Asp	Gly	Glu	Ser	Gly 200	Ser	Pro	Ser	Ser	Ser 205	Ser	Ser	Gly	
tct	ctg	gcc	ctg	ggc	agc	gct	gct	att	cgt	ggc	cag	gcc	gag	gtc	acc	1091
Ser	Leu	Ala	Leu	Gly	Ser	Ala	Ala	Ile	Arg	Gly	Gln	Ala	Glu	Val	Thr	
	210					215					220					
cag	gac	cct	gcc	ccg	ctc	ctg	aga	ggc	ttc	cgg	aag	cca	gcc	aca	ggc	1139
Gln	Asp	Pro	Ala	Pro	Leu	Leu	Arg	Gly	Phe	Arg	Lys	Pro	Ala	Thr	Gly	
225					230					235					240	
caa	atg	aag	cgc	aac	aga	ggg	gaa	gaa	ata	gat	ttt	gag	aca	cct	ggg	1187
Gln	Met	Lys	Arg	Asn	Arg	Gly	Glu	Glu	Ile	Asp	Phe	Glu	Thr	Pro	Gly	
				245					250					255		
tcc	att	ctt	gtc	aac	acc	aac	ctc	cgt	gcc	ctg	atc	aac	tct	cgg	acc	1235
Ser	Ile	Leu	Val	Asn	Thr	Asn	Leu	Arg	Ala	Leu	Ile	Asn	Ser	Arg	Thr	
			260					265					270			
ttc	cat	gcc	tta	cca	tca	cac	ttc	cag	cag	cag	ctc	ctc	ttc	ctc	ctg	1283
Phe	His	Ala	Leu	Pro	Ser	His	Phe	Gln	Gln	Gln	Leu	Leu	Phe	Leu	Leu	
		275					280					285				
cct	gaa	gta	gac	aga	cag	gtg	ggg	acg	gat	ggc	ctg	ttg	cgt	ctc	agc	1331
Pro	Glu	Val	Asp	Arg	Gln	Val	Gly	Thr	Asp	Gly	Leu	Leu	Arg	Leu	Ser	
	290					295					300					
agc	agt	gca	cta	aat	aac	gag	ttt	ttt	acc	cat	gcg	gct	cag	agc	tgg	1379
Ser	Ser	Ala	Leu	Asn	Asn	Glu	Phe	Phe	Thr	His	Ala	Ala	Gln	Ser	Trp	
305					310					315					320	
cgg	gag	cgc	ctg	gct	gat	ggc	gaa	ttt	act	cat	gag	atg	caa	gtc	agg	1427
Arg	Glu	Arg	Leu	Ala	Asp	Gly	Glu	Phe	Thr	His	Glu	Met	Gln	Val	Arg	
				325					330					335		
ata	cga	cag	gaa	atg	gag	aag	gaa	aag	aag	gtg	gaa	caa	tgg	aaa	gaa	1475
Ile	Arg	Gln	Glu	Met	Glu	Lys	Glu	Lys	Lys	Val	Glu	Gln	Trp	Lys	Glu	
			340					345					350			
aag	ttc	ttt	gaa	gac	tac	tat	gga	cag	aag	ctg	ggc	ttg	acc	aaa	gaa	1523
Lys	Phe	Phe	Glu	Asp	Tyr	Tyr	Gly	Gln	Lys	Leu	Gly	Leu	Thr	Lys	Glu	
		355					360					365				
gag	tca	ttg	cag	cag	aac	gtg	ggc	cag	gag	gag	gct	gaa	atc	aaa	agt	1571
Glu	Ser	Leu	Gln	Gln	Asn	Val	Gly	Gln	Glu	Glu	Ala	Glu	Ile	Lys	Ser	
	370					375					380					
ggc	ttg	tgt	gtc	cca	gga	gaa	tca	gtg	cgt	ata	cag	cgt	ggc	cca	gcc	1619
Gly	Leu	Cys	Val	Pro	Gly	Glu	Ser	Val	Arg	Ile	Gln	Arg	Gly	Pro	Ala	
385					390					395					400	
acc	cga	cag	cga	gat	ggg	cat	ttt	aag	aaa	cgc	tct	cgg	cca	gat	ctc	1667
Thr	Arg	Gln	Arg	Asp	Gly	His	Phe	Lys	Lys	Arg	Ser	Arg	Pro	Asp	Leu	
				405					410					415		
cga	acc	aga	gcc	aga	agg	aat	ctg	tac	aaa	aaa	cag	gag	tca	gaa	caa	1715
Arg	Thr	Arg	Ala	Arg	Arg	Asn	Leu	Tyr	Lys	Lys	Gln	Glu	Ser	Glu	Gln	
			420					425					430			
gca	ggg	gtt	gct	aag	gat	gca	aaa	tct	gtg	gcc	tca	gat	gtt	ccc	ctc	1763
Ala	Gly	Val	Ala	Lys	Asp	Ala	Lys	Ser	Val	Ala	Ser	Asp	Val	Pro	Leu	
		435					440					445				

tac Tyr	aag Lys 450	gat Asp	ggg Gly	gag Glu	gct Ala	aag Lys 455	act Thr	gac Asp	cca Pro	gca Ala	ggg Gly 460	ctg Leu	agc Ser	agt Ser	ccc Pro	1811
cat His 465	ctg Leu	cca Pro	ggc Gly	aca Thr	tcc Ser 470	tct Ser	gca Ala	gca Ala	ccc Pro	gac Asp 475	ctg Leu	gag Glu	ggt Gly	ccc Pro	gaa Glu 480	1859
ttc Phe	cca Pro	gtt Val	gag Glu	tct Ser 485	gtg Val	gct Ala	tct Ser	cgg Arg	atc Ile 490	cag Gln	gct Ala	gag Glu	cca Pro	gac Asp 495	aac Asn	1907
ttg Leu	gca Ala	cgt Arg	gcc Ala 500	tct Ser	gca Ala	tct Ser	cca Pro	gac Asp 505	aga Arg	att Ile	cct Pro	agc Ser	ctg Leu 510	cct Pro	cag Gln	1955
gaa Glu	act Thr	gtg Val 515	gat Asp	cag Gln	gaa Glu	ccc Pro	aag Lys 520	gat Asp	cag Gln	aag Lys	agg Arg	aaa Lys 525	tcc Ser	ttt Phe	gag Glu	2003
cag Gln	gcg Ala 530	gcc Ala	tct Ser	gca Ala	tcc Ser	ttt Phe 535	ccc Pro	gaa Glu	aag Lys	aag Lys	ccc Pro 540	cgg Arg	ctt Leu	gaa Glu	gat Asp	2051
cgt Arg 545	cag Gln	tcc Ser	ttt Phe	cgt Arg	aac Asn 550	aca Thr	att Ile	gaa Glu	agt Ser	gtt Val 555	cac His	acc Thr	gaa Glu	aag Lys	cca Pro 560	2099
cag Gln	ccc Pro	act Thr	aaa Lys	gag Glu 565	gag Glu	ccc Pro	aaa Lys	gtc Val	ccg Pro 570	ccc Pro	atc Ile	cgg Arg	att Ile	caa Gln 575	ctt Leu	2147
tca Ser	cgt Arg	atc Ile	aaa Lys 580	cca Pro	ccc Pro	tgg Trp	gtg Val	gtt Val 585	aaa Lys	ggt Gly	cag Gln	ccc Pro	act Thr 590	tac Tyr	cag Gln	2195
ata Ile	tgc Cys	ccc Pro 595	cgg Arg	atc Ile	atc Ile	ccc Pro	acc Thr 600	acg Thr	gag Glu	tcc Ser	tcc Ser	tgc Cys 605	cgg Arg	ggt Gly	tgg Trp	2243
act Thr	ggc Gly 610	gcc Ala	agg Arg	acc Thr	ctc Leu	gca Ala 615	gac Asp	att Ile	aaa Lys	gcc Ala	cgt Arg 620	gct Ala	ctg Leu	cag Gln	gtc Val	2291
cga Arg 625	ggg Gly	gcg Ala	aga Arg	ggt Gly	cac His 630	cac His	tgc Cys	cat His	aga Arg	gag Glu 635	gcg Ala	gcc Ala	acc Thr	act Thr	gcc Ala 640	2339
atc Ile	gga Gly	ggg Gly	ggg Gly	ggt Gly 645	ggc Gly	ccg Pro	ggt Gly	gga Gly	ggt Gly 650	ggc Gly	ggc Gly	ggg Gly	gcc Ala	acc Thr 655	gat Asp	2387
gag Glu	gga Gly	ggt Gly	ggc Gly 660	aga Arg	ggc Gly	agc Ser	agc Ser	agt Ser 665	ggt Gly	gat Asp	ggt Gly	ggt Gly	gag Glu 670	gcc Ala	tgt Cys	2435
ggc Gly	cac His	cct Pro 675	gag Glu	ccc Pro	agg Arg	gga Gly	ggc Gly 680	ccg Pro	agc Ser	acc Thr	cct Pro	gga Gly 685	aag Lys	tgt Cys	acg Thr	2483
tca Ser	gat Asp 690	cta Leu	cag Gln	cga Arg	aca Thr	caa Gln 695	cta Leu	ctg Leu	ccg Pro	cct Pro	tat Tyr 700	cct Pro	cta Leu	aat Asn	ggg Gly	2531

gag Glu 705	cat His	acc Thr	cag Gln	gcc Ala	gga Gly 710	act Thr	gcc Ala	atg Met	tcc Ser	aga Arg 715	gct Ala	agg Arg	aga Arg	gag Glu	gac Asp 720	2579
ctg Leu	cct Pro	tct Ser	ctg Leu	aga Arg 725	aag Lys	gag Glu	gaa Glu	agc Ser	tgc Cys 730	cta Leu	cta Leu	cag Gln	agg Arg	gct Ala 735	aca Thr	2627
gtt Val	gga Gly	ctc Leu	aca Thr 740	gat Asp	ggg Gly	cta Leu	gga Gly	gat Asp 745	gcc Ala	tcc Ser	caa Gln	ctc Leu	ccc Pro 750	gtt Val	gct Ala	2675
ccc Pro	act Thr	ggg Gly 755	gac Asp	cag Gln	cca Pro	tgc Cys	cag Gln 760	gcc Ala	ttg Leu	ccc Pro	cta Leu	ctg Leu 765	tcc Ser	tcc Ser	caa Gln	2723
acc Thr	tca Ser 770	gta Val	gct Ala	gag Glu	aga Arg	tta Leu 775	gtg Val	gag Glu	cag Gln	cct Pro	cag Gln 780	ttg Leu	cat His	ccg Pro	gat Asp	2771
gtt Val 785	aga Arg	act Thr	gaa Glu	tgt Cys	gag Glu 790	tct Ser	ggc Gly	acc Thr	act Thr	tcc Ser 795	tgg Trp	gaa Glu	agt Ser	gat Asp	gat Asp 800	2819
gag Glu	gag Glu	caa Gln	gga Gly	ccc Pro 805	acc Thr	gtt Val	cct Pro	gca Ala	gac Asp 810	aat Asn	ggg Gly	ccc Pro	att Ile	ccg Pro 815	tct Ser	2867
cta Leu	gtg Val	gga Gly	gat Asp 820	gat Asp	aca Thr	tta Leu	gag Glu	aaa Lys 825	gga Gly	act Thr	ggc Gly	caa Gln	gct Ala 830	ctt Leu	gac Asp	2915
agt Ser	cat His	ccc Pro 835	act Thr	atg Met	aag Lys	gat Asp	cct Pro 840	gta Val	aat Asn	gtg Val	acc Thr	ccc Pro 845	agt Ser	tcc Ser	aca Thr	2963
cct Pro 850	gaa Glu	tcc Ser	tca Ser	ccg Pro	act Thr	gat Asp 855	tgc Cys	ctg Leu	cag Gln	aac Asn	aga Arg 860	gca Ala	ttt Phe	gat Asp	gac Asp	3011
gaa Glu 865	tta Leu	ggg Gly	ctt Leu	ggg Gly 870	ggc Gly	tca Ser	tgc Cys	cct Pro	cct Pro	atg Met 875	agg Arg	gaa Glu	agt Ser	gat Asp	act Thr 880	3059
aga Arg	caa Gln	gaa Glu	aac Asn 885	ttg Leu	aaa Lys	acc Thr	aag Lys	gct Ala 890	ctc Leu	gtt Val	tct Ser	aac Asn	agt Ser	tct Ser 895	ttg Leu	3107
cat His	tgg Trp	ata Ile	ccc Pro 900	atc Ile	cca Pro	tcg Ser	aat Asn	gat Asp 905	gag Glu	gta Val	gtg Val	aaa Lys	cag Gln 910	ccc Pro	aaa Lys	3155
cca Pro	gaa Glu	tcc Ser 915	aga Arg	gaa Glu	cac His	ata Ile	cca Pro 920	tct Ser	gtt Val	gag Glu	ccc Pro	cag Gln 925	gtt Val	gga Gly	gag Glu	3203
gag Glu	tgg Trp 930	gag Glu	aaa Lys	gct Ala	gct Ala	ccc Pro 935	acc Thr	cct Pro	cct Pro	gca Ala	ttg Leu 940	cct Pro	ggg Gly	gat Asp	ttg Leu	3251
aca Thr	gct Ala	gag Glu	gag Glu	ggg Gly	cta Leu	gat Asp	cct Pro	ctt Leu	gac Asp	agc Ser	ctt Leu	act Thr	tca Ser	ctc Leu	tgg Trp	3299

945	950	955	960	
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Thr Val Pro Ser Arg Gly Gly Ser Asp Ser Asn Gly Ser Tyr Cys Gln	965	970	975	
cag gtg gac att gaa aag ctg aaa atc aac gga gac tct gaa gca ctg				3395
Gln Val Asp Ile Glu Lys Leu Lys Ile Asn Gly Asp Ser Glu Ala Leu	980	985	990	
agt cct cac ggt gag tcc acg gat aca gcc tct gac ttt gaa ggt cac				3443
Ser Pro His Gly Glu Ser Thr Asp Thr Ala Ser Asp Phe Glu Gly His	995	1000	1005	
ctc acg gag gac agc agt gag gct gac act aga gaa gct gca gtg				3488
Leu Thr Glu Asp Ser Ser Glu Ala Asp Thr Arg Glu Ala Ala Val	1010	1015	1020	
aca aag gga tct tcg gtg gac aag gat gag aaa ccc aat tgg aac				3533
Thr Lys Gly Ser Ser Val Asp Lys Asp Glu Lys Pro Asn Trp Asn	1025	1030	1035	
caa tct gcc cca ctg tcc aag gtg aat ggt gac atg cgt ctg gtt				3578
Gln Ser Ala Pro Leu Ser Lys Val Asn Gly Asp Met Arg Leu Val	1040	1045	1050	
aca agg aca gat ggg atg gtt gct cct cag agc tgg gtg tct cga				3623
Thr Arg Thr Asp Gly Met Val Ala Pro Gln Ser Trp Val Ser Arg	1055	1060	1065	
gta tgt gcg gtc cgc caa aag atc cca gat tcc cta ctg ctg gcc				3668
Val Cys Ala Val Arg Gln Lys Ile Pro Asp Ser Leu Leu Leu Ala	1070	1075	1080	
agt act gag tac cag cca aga gcc gtg tgc ctg tcc atg cct ggg				3713
Ser Thr Glu Tyr Gln Pro Arg Ala Val Cys Leu Ser Met Pro Gly	1085	1090	1095	
tcc tca gtg gag gcc act aac cca ctt gtg atg cag ttg ctg cag				3758
Ser Ser Val Glu Ala Thr Asn Pro Leu Val Met Gln Leu Leu Gln	1100	1105	1110	
ggt agc ttg ccc cta gag aag gtt ctt cca cca gcc cac gat gac				3803
Gly Ser Leu Pro Leu Glu Lys Val Leu Pro Pro Ala His Asp Asp	1115	1120	1125	
agc atg tca gaa tcc cca caa gta cca ctt aca aaa gac cag agc				3848
Ser Met Ser Glu Ser Pro Gln Val Pro Leu Thr Lys Asp Gln Ser	1130	1135	1140	
cat ggc tcg cta cgc atg gga tct tta cat ggt ctt gga aaa aac				3893
His Gly Ser Leu Arg Met Gly Ser Leu His Gly Leu Gly Lys Asn	1145	1150	1155	
agt ggc atg gtt gat gga agc agc ccc agt tct tta agg gct ttg				3938
Ser Gly Met Val Asp Gly Ser Ser Pro Ser Ser Leu Arg Ala Leu	1160	1165	1170	
aag gag cct ctt ctg cca gat agc tgt gaa aca ggc act ggt ctt				3983
Lys Glu Pro Leu Leu Pro Asp Ser Cys Glu Thr Gly Thr Gly Leu	1175	1180	1185	
gcc agg att gag gcc acc cag gct cct gga gca ccc caa aag aat				4028

2007-06-23 1254-0326PUS1.ST251															
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tgc	aag	gca	gtc	cca	agt	ttt	gac	tcc	ctc	cat	cca	gtg	aca	aat	4073
Cys	Lys	Ala	Val	Pro	Ser	Phe	Asp	Ser	Leu	His	Pro	Val	Thr	Asn	
	1205					1210					1215				
ccc	att	aca	tcc	tct	agg	aaa	ctg	gaa	gaa	atg	gat	tcc	aaa	gag	4118
Pro	Ile	Thr	Ser	Ser	Arg	Lys	Leu	Glu	Glu	Met	Asp	Ser	Lys	Glu	
	1220					1225					1230				
cag	ttc	tct	tcc	ttt	agt	tgt	gaa	gat	cag	aag	gaa	gtc	cgt	gct	4163
Gln	Phe	Ser	Ser	Phe	Ser	Cys	Glu	Asp	Gln	Lys	Glu	Val	Arg	Ala	
	1235					1240					1245				
atg	tca	cag	gac	agt	aat	tca	aat	gct	gct	cca	gga	aag	agc	cca	4208
Met	Ser	Gln	Asp	Ser	Asn	Ser	Asn	Ala	Ala	Pro	Gly	Lys	Ser	Pro	
	1250					1255					1260				
gga	gat	ctt	act	acc	tcg	aga	aca	cct	cgt	ttc	tca	tct	cca	aat	4253
Gly	Asp	Leu	Thr	Thr	Ser	Arg	Thr	Pro	Arg	Phe	Ser	Ser	Pro	Asn	
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gtg	atc	tcc	ttt	ggt	cca	gag	cag	aca	ggt	cgg	gcc	ctg	ggt	gat	4298
Val	Ile	Ser	Phe	Gly	Pro	Glu	Gln	Thr	Gly	Arg	Ala	Leu	Gly	Asp	
	1280					1285					1290				
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Gln	Ser	Asn	Val	Thr	Gly	Gln	Gly	Lys	Lys	Leu	Phe	Gly	Ser	Gly	
	1295					1300					1305				
aat	gtg	gct	gca	acc	ctt	cag	cgc	ccc	agg	cct	gcg	gac	ccg	atg	4388
Asn	Val	Ala	Ala	Thr	Leu	Gln	Arg	Pro	Arg	Pro	Ala	Asp	Pro	Met	
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cct	ctt	cct	gct	gag	atc	cct	cca	gtt	ttt	ccc	agt	ggg	aag	ttg	4433
Pro	Leu	Pro	Ala	Glu	Ile	Pro	Pro	Val	Phe	Pro	Ser	Gly	Lys	Leu	
	1325					1330					1335				
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Gly	Pro	Ser	Thr	Asn	Ser	Met	Ser	Gly	Gly	Val	Gln	Thr	Pro	Arg	
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gaa	gac	tgg	gct	cca	aag	cca	cat	gcc	ttt	gtt	ggc	agc	gtc	aag	4523
Glu	Asp	Trp	Ala	Pro	Lys	Pro	His	Ala	Phe	Val	Gly	Ser	Val	Lys	
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Asn	Glu	Lys	Thr	Phe	Val	Gly	Gly	Pro	Leu	Lys	Ala	Asn	Ala	Glu	
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Asn	Arg	Lys	Ala	Thr	Gly	His	Ser	Pro	Leu	Glu	Leu	Val	Gly	His	
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Leu	Glu	Gly	Met	Pro	Phe	Val	Met	Asp	Leu	Pro	Phe	Trp	Lys	Leu	
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Pro	Arg	Glu	Pro	Gly	Lys	Gly	Leu	Ser	Glu	Pro	Leu	Glu	Pro	Ser	
	1415					1420					1425				

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ctt tct aaa ctc caa ctg agt tcc acc agc ttt aat tat tcc tct Leu Ser Lys Leu Gln Leu Ser Ser Thr Ser Phe Asn Tyr Ser Ser 1445 1450 1455	4793
agc tct ccc acc ttt ccc aaa ggc ctt gct gga agt gtg gtg cag Ser Ser Pro Thr Phe Pro Lys Gly Leu Ala Gly Ser Val Val Gln 1460 1465 1470	4838
ctg agc cac aaa gca aac ttt ggt gcg agc cac agt gca tca ctt Leu Ser His Lys Ala Asn Phe Gly Ala Ser His Ser Ala Ser Leu 1475 1480 1485	4883
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Lys Glu Pro Leu Leu Pro Asp Ser Cys Glu Thr Gly Thr Gly Leu
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Cys Lys Ala Val Pro Ser Phe Asp Ser Leu His Pro Val Thr Asn
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Gly Asp Leu Thr Thr Ser Arg Thr Pro Arg Phe Ser Ser Pro Asn
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Thr Met Asn Thr Met Thr Thr Ser Gly Asn Met Thr Pro Ala Ser Phe
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Met Gly Ala Met Gly Ala Gln Gln Ala Ala Ser Met Asn Gly Leu Gly
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Pro Tyr Ala Ala Ala Met Asn Pro Cys Met Ser Pro Met Ala Tyr Ala
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Pro Ser Asn Leu Gly Arg Ser Arg Ala Gly Gly Gly Gly Asp Ala Lys
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Thr Phe Lys Arg Ser Tyr Pro His Ala Lys Pro Pro Tyr Ser Tyr Ile
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Gln Asn Gln Gln Arg Trp Gln Asn Ser Ile Arg His Ser Leu Ser Phe
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Asn Asp Cys Phe Val Lys Val Ala Arg Ser Pro Asp Lys Pro Gly Lys
Page 118

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Ala Ser Ser Thr Ala Pro Pro Ile Ser Ser Gly Pro Gly Ala Leu Ala
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Ser Val Pro Ala Ser His Pro Ala His Gly Leu Ala Pro His Glu Ser
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2007-06-23 1254-0326PUS1.ST251

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2007-06-23 1254-0326PUS1.ST251

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Asp Gly Lys Thr Ala Val Thr Glu Ile Val Asn Ser Phe Leu Cys Leu
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 Ile Ala Ser Met Leu Pro Glu Gln Leu Tyr Phe Leu Gln Ser Pro Pro
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 Ile Lys Met Glu Val Leu Asn Lys Lys Lys Met Tyr Trp Glu Arg Lys
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Trp Gln Ala Leu Ala His Glu Tyr Asn Ser Gln Pro Ser Val Ser Leu
 Page 126

2007-06-23 1254-0326PUS1.ST251
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Ser Asn Arg Glu Leu Cys Asp Asp Glu Lys Glu Phe Ile His Phe Pro
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Val Cys Glu Gly Thr Ser Gln Pro Glu Pro Ser Cys Ser Ala Val Arg
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Ile Thr Ala Asn Lys Asn Tyr Arg Ser Lys Thr Ser Gln Glu Gly Ala
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Leu Lys Lys Met His Glu Glu Glu His His Gln Gln Met Ser Ile Leu
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Gln Leu Gln Leu Ile Gln Met Asn Glu Val His Val Ala Lys Ile Gln
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tct	aaa	gag	ggt	ctg	act	gag	cgc	ttt	gag	ctg	ttt	gtc	atg	aag	aaa	1490
Ser	Lys	Glu	Gly	Leu	Thr	Glu	Arg	Phe	Glu	Leu	Phe	Val	Met	Lys	Lys	
		480					485					490				
gag	ata	tgc	aat	gcg	tat	act	gag	ctg	aat	gat	ccc	atg	cgg	cag	cgg	1538
Glu	Ile	Cys	Asn	Ala	Tyr	Thr	Glu	Leu	Asn	Asp	Pro	Met	Arg	Gln	Arg	
	495					500					505					
cag	ctt	ttt	gaa	gaa	cag	gcc	aag	gcc	aag	gct	gca	ggt	gat	gat	gag	1586
Gln	Leu	Phe	Glu	Glu	Gln	Ala	Lys	Ala	Lys	Ala	Ala	Gly	Asp	Asp	Glu	
510					515					520					525	
gcc	atg	ttc	ata	gat	gaa	aac	ttc	tgt	act	gcc	ctg	gaa	tat	ggg	ctg	1634
Ala	Met	Phe	Ile	Asp	Glu	Asn	Phe	Cys	Thr	Ala	Leu	Glu	Tyr	Gly	Leu	
				530					535					540		
ccc	ccc	aca	gct	ggc	tgg	ggc	atg	ggc	att	gat	cga	gtc	gcc	atg	ttt	1682
Pro	Pro	Thr	Ala	Gly	Trp	Gly	Met	Gly	Ile	Asp	Arg	Val	Ala	Met	Phe	
			545					550					555			
ctc	acg	gac	tcc	aac	aac	atc	aag	gaa	gta	ctt	ctg	ttt	cct	gcc	atg	1730
Leu	Thr	Asp	Ser	Asn	Asn	Ile	Lys	Glu	Val	Leu	Leu	Phe	Pro	Ala	Met	
		560					565					570				
aaa	ccc	gaa	gac	aag	aag	gag	aat	gta	gca	acc	act	gat	aca	ctg	gaa	1778
Lys	Pro	Glu	Asp	Lys	Lys	Glu	Asn	Val	Ala	Thr	Thr	Asp	Thr	Leu	Glu	
	575					580					585					
agc	aca	aca	gtt	ggc	act	tct	gtc	tag	aaaataataa	ttgcaagttg						1825
Ser	Thr	Thr	Val	Gly	Thr	Ser	Val									
590					595											
tataactcag	gcgtctttgc	atttctgcga	aagatcaagg	tctgcaaggg	aattcttgtg											1885
tgctgctttc	catttgacac	cgcagttctg	ttcagccatc	agaagagaga	caaggaatta											1945
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<210> 56
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 <212> PRT
 <213> Homo sapiens

<400> 56

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			20					25					30		
Val	Ala	Glu	Lys	Glu	Ala	Lys	Gln	Lys	Glu	Leu	Ser	Glu	Lys	Gln	Leu
		35					40					45			
Ser	Gln	Ala	Thr	Ala	Ala	Ala	Thr	Asn	His	Thr	Thr	Asp	Asn	Gly	Val
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Gly Pro Glu Glu Glu Ser Val Asp Pro Asn Gln Tyr Tyr Lys Ile Arg
65 70 75 80

Ser Gln Ala Ile His Gln Leu Lys Val Asn Gly Glu Asp Pro Tyr Pro
85 90 95

His Lys Phe His Val Asp Ile Ser Leu Thr Asp Phe Ile Gln Lys Tyr
100 105 110

Ser His Leu Gln Pro Gly Asp His Leu Thr Asp Ile Thr Leu Lys Val
115 120 125

Ala Gly Arg Ile His Ala Lys Arg Ala Ser Gly Gly Lys Leu Ile Phe
130 135 140

Tyr Asp Leu Arg Gly Glu Gly Val Lys Leu Gln Val Met Ala Asn Ser
145 150 155 160

Arg Asn Tyr Lys Ser Glu Glu Glu Phe Ile His Ile Asn Asn Lys Leu
165 170 175

Arg Arg Gly Asp Ile Ile Gly Val Gln Gly Asn Pro Gly Lys Thr Lys
180 185 190

Lys Gly Glu Leu Ser Ile Ile Pro Tyr Glu Ile Thr Leu Leu Ser Pro
195 200 205

Cys Leu His Met Leu Pro His Leu His Phe Gly Leu Lys Asp Lys Glu
210 215 220

Thr Arg Tyr Arg Gln Arg Tyr Leu Asp Leu Ile Leu Asn Asp Phe Val
225 230 235 240

Arg Gln Lys Phe Ile Ile Arg Ser Lys Ile Ile Thr Tyr Ile Arg Ser
245 250 255

Phe Leu Asp Glu Leu Gly Phe Leu Glu Ile Glu Thr Pro Met Met Asn
260 265 270

Ile Ile Pro Gly Gly Ala Val Ala Lys Pro Phe Ile Thr Tyr His Asn
275 280 285

Glu Leu Asp Met Asn Leu Tyr Met Arg Ile Ala Pro Glu Leu Tyr His
290 295 300

Lys Met Leu Val Val Gly Gly Ile Asp Arg Val Tyr Glu Ile Gly Arg
305 310 315 320

Gln Phe Arg Asn Glu Gly Ile Asp Leu Thr His Asn Pro Glu Phe Thr
 325 330 335

Thr Cys Glu Phe Tyr Met Ala Tyr Ala Asp Tyr His Asp Leu Met Glu
 340 345 350

Ile Thr Glu Lys Met Val Ser Gly Met Val Lys His Ile Thr Gly Ser
 355 360 365

Tyr Lys Val Thr Tyr His Pro Asp Gly Pro Glu Gly Gln Ala Tyr Asp
 370 375 380

Val Asp Phe Thr Pro Pro Phe Arg Arg Ile Asn Met Val Glu Glu Leu
 385 390 400

Glu Lys Ala Leu Gly Met Lys Leu Pro Glu Thr Asn Leu Phe Glu Thr
 405 410 415

Glu Glu Thr Arg Lys Ile Leu Asp Asp Ile Cys Val Ala Lys Ala Val
 420 425 430

Glu Cys Pro Pro Pro Arg Thr Thr Ala Arg Leu Leu Asp Lys Leu Val
 435 440 445

Gly Glu Phe Leu Glu Val Thr Cys Ile Asn Pro Thr Phe Ile Cys Asp
 450 455 460

His Pro Gln Ile Met Ser Pro Leu Ala Lys Trp His Arg Ser Lys Glu
 465 470 475 480

Gly Leu Thr Glu Arg Phe Glu Leu Phe Val Met Lys Lys Glu Ile Cys
 485 490 495

Asn Ala Tyr Thr Glu Leu Asn Asp Pro Met Arg Gln Arg Gln Leu Phe
 500 505 510

Glu Glu Gln Ala Lys Ala Lys Ala Ala Gly Asp Asp Glu Ala Met Phe
 515 520 525

Ile Asp Glu Asn Phe Cys Thr Ala Leu Glu Tyr Gly Leu Pro Pro Thr
 530 535 540

Ala Gly Trp Gly Met Gly Ile Asp Arg Val Ala Met Phe Leu Thr Asp
 545 550 555 560

Ser Asn Asn Ile Lys Glu Val Leu Leu Phe Pro Ala Met Lys Pro Glu
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Asp Lys Lys Glu Asn Val Ala Thr Thr Asp Thr Leu Glu Ser Thr Thr
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Val Gly Thr Ser Val
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<212> DNA
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aaccagacga gctacctaag aacagctaaa agagcacacc cgtctatgta gcaaaatagt 300
gggaagattt ataggtagag gcgacaaacc taccgagcct ggtgatagct ggttgtccaa 360
gatagaatct tagttcaact ttaaatttgc ccacagaacc ctctaaatcc ccttgtaaata 420
ttaactgtta gtccaaagag gaacagctct ttggacacta ggaaaaaacc ttgtagagag 480
agtaaaaaat ttaacaccca tagtaggcct aaaagcagcc accaattaag aaagcgttca 540
agctcaacac ccactaccta aaaaatccca aacatataac tgaactcctc acaccaatt 600
ggaccaatct atcaccttat agaagaacta atgttagtat aagtaacatg aaaacattct 660
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acaatcaacc cacaagtcatt tattaccctc actgtcaacc caa 763

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agaccagcag cctcgggggg ccccccccg ccagcctgcc tccctcccgc tcagccctgc 180
caggggtccc cagcc atg aat ctc ttc cga ttc ctg gga gac ctc tcc cac 231
Met Asn Leu Phe Arg Phe Leu Gly Asp Leu Ser His
1 5 10

ctc	ctc	gcc	atc	atc	ttg	cta	ctg	ctc	aaa	atc	tgg	aag	tcc	cgc	tcg	279
Leu	Leu	Ala	Ile	Ile	Leu	Leu	Leu	Leu	Lys	Ile	Trp	Lys	Ser	Arg	Ser	
		15					20					25				
tgc	gcc	gga	att	tca	ggg	aag	agc	cag	gtc	ctg	ttt	gct	gtg	gtg	ttc	327
Cys	Ala	Gly	Ile	Ser	Gly	Lys	Ser	Gln	Val	Leu	Phe	Ala	Val	Val	Phe	
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act	gcc	cga	tat	ctg	gac	ctc	ttc	acc	aac	tac	atc	tca	ctc	tac	aac	375
Thr	Ala	Arg	Tyr	Leu	Asp	Leu	Phe	Thr	Asn	Tyr	Ile	Ser	Leu	Tyr	Asn	
45					50					55					60	
acg	tgt	atg	aag	gtg	gtc	tac	ata	gcc	tgc	tcc	ttc	acc	acg	gtc	tgg	423
Thr	Cys	Met	Lys	Val	Val	Tyr	Ile	Ala	Cys	Ser	Phe	Thr	Thr	Val	Trp	
				65					70					75		
ttg	att	tat	agc	aag	ttc	aaa	gct	act	tac	gat	ggg	aac	cat	gac	acg	471
Leu	Ile	Tyr	Ser	Lys	Phe	Lys	Ala	Thr	Tyr	Asp	Gly	Asn	His	Asp	Thr	
			80					85					90			
ttc	aga	gtg	gag	ttc	ctg	gtc	gtt	ccc	aca	gcc	att	ctg	gcg	ttc	ctg	519
Phe	Arg	Val	Glu	Phe	Leu	Val	Val	Pro	Thr	Ala	Ile	Leu	Ala	Phe	Leu	
		95					100					105				
gtc	aat	cat	gac	ttc	acc	cct	ctg	gag	atc	ctc	tgg	acc	ttc	tcc	atc	567
Val	Asn	His	Asp	Phe	Thr	Pro	Leu	Glu	Ile	Leu	Trp	Thr	Phe	Ser	Ile	
	110					115					120					
tac	ctg	gag	tca	gtg	gcc	atc	ttg	ccg	cag	ctg	ttc	atg	gtg	agc	aag	615
Tyr	Leu	Glu	Ser	Val	Ala	Ile	Leu	Pro	Gln	Leu	Phe	Met	Val	Ser	Lys	
125					130					135					140	
acc	ggc	gag	gcg	gag	acc	atc	acc	agc	cac	tac	ttg	ttt	gcg	cta	ggc	663
Thr	Gly	Glu	Ala	Glu	Thr	Ile	Thr	Ser	His	Tyr	Leu	Phe	Ala	Leu	Gly	
				145					150					155		
gtt	tac	cgc	acg	ctc	tat	ctc	ttc	aac	tgg	atc	tgg	cgc	tac	cat	ttc	711
Val	Tyr	Arg	Thr	Leu	Tyr	Leu	Phe	Asn	Trp	Ile	Trp	Arg	Tyr	His	Phe	
			160					165					170			
gag	ggc	ttc	ttc	gac	ctc	atc	gcc	att	gtg	gca	ggc	ctg	gtc	cag	aca	759
Glu	Gly	Phe	Phe	Asp	Leu	Ile	Ala	Ile	Val	Ala	Gly	Leu	Val	Gln	Thr	
		175					180					185				
gtc	ctc	tac	tgc	gat	ttc	ttc	tac	ctc	tat	atc	acc	aaa	gtc	cta	aag	807
Val	Leu	Tyr	Cys	Asp	Phe	Phe	Tyr	Leu	Tyr	Ile	Thr	Lys	Val	Leu	Lys	
	190					195					200					
ggg	aag	aag	ttg	agt	ttg	ccg	gca	tag	ccccggtcct	ctccatctct						854
Gly	Lys	Lys	Leu	Ser	Leu	Pro	Ala									
205					210											
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2007-06-23 1254-0326PUS1.ST251

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a 1575

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<212> PRT
<213> Homo sapiens

<400> 59

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Ile Leu Leu Leu Lys Ile Trp Lys Ser Arg Ser Cys Ala Gly Ile
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Ser Gly Lys Ser Gln Val Leu Phe Ala Val Val Phe Thr Ala Arg Tyr
35 40 45

Leu Asp Leu Phe Thr Asn Tyr Ile Ser Leu Tyr Asn Thr Cys Met Lys
50 55 60

Val Val Tyr Ile Ala Cys Ser Phe Thr Thr Val Trp Leu Ile Tyr Ser
65 70 75 80

Lys Phe Lys Ala Thr Tyr Asp Gly Asn His Asp Thr Phe Arg Val Glu
85 90 95

Phe Leu Val Val Pro Thr Ala Ile Leu Ala Phe Leu Val Asn His Asp
100 105 110

Phe Thr Pro Leu Glu Ile Leu Trp Thr Phe Ser Ile Tyr Leu Glu Ser
115 120 125

Val Ala Ile Leu Pro Gln Leu Phe Met Val Ser Lys Thr Gly Glu Ala
130 135 140

Glu Thr Ile Thr Ser His Tyr Leu Phe Ala Leu Gly Val Tyr Arg Thr
145 150 155 160

Leu Tyr Leu Phe Asn Trp Ile Trp Arg Tyr His Phe Glu Gly Phe Phe
165 170 175

Asp Leu Ile Ala Ile Val Ala Gly Leu Val Gln Thr Val Leu Tyr Cys
180 185 190

Asp Phe Phe Tyr Leu Tyr Ile Thr Lys Val Leu Lys Gly Lys Lys Leu
195 200 205

Ser Leu Pro Ala
210

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<211> 2245
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<222> (157)..(1110)

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ggtgcttgga gctccagcag ctggctggag cccgcg atg acg tca cgg act cgg 174
Met Thr Ser Arg Thr Arg
1 5
gtc aca tgg ccg agt ccg ccc cgc ccc ctc ccc gtc ccc gcc gct gca 222
Val Thr Trp Pro Ser Pro Pro Arg Pro Leu Pro Val Pro Ala Ala Ala
10 15 20
gcc gtc gcc ttc gga gcg aag ggt acc gac ccg gca gaa gct cgg agc 270
Ala Val Ala Phe Gly Ala Lys Gly Thr Asp Pro Ala Glu Ala Arg Ser
25 30 35
tct cgg ggt atc gag gag gca ggc ccg cgg gcg cac ggg cga gcg ggc 318
Ser Arg Gly Ile Glu Glu Ala Gly Pro Arg Ala His Gly Arg Ala Gly
40 45 50
cgg gag ccg gag ccg ccg agg agc ccg cag cag ccg cgc ggc ggg ctc 366
Arg Glu Pro Glu Arg Arg Arg Ser Arg Gln Gln Arg Arg Gly Gly Leu
55 60 65 70
cag gcg agg ccg tcg acg ctc ctg aaa act tgc gcg cgc gct cgc gcc 414
Gln Ala Arg Arg Ser Thr Leu Leu Lys Thr Cys Ala Arg Ala Arg Ala
75 80 85
act gcg ccc gga gcg atg aag atg gtc gcg ccc tgg acg ccg ttc tac 462
Thr Ala Pro Gly Ala Met Lys Met Val Ala Pro Trp Thr Arg Phe Tyr
90 95 100
tcc aac agc tgc tgc ttg tgc tgc cat gtc cgc acc ggc acc atc ctg 510
Ser Asn Ser Cys Cys Leu Cys Cys His Val Arg Thr Gly Thr Ile Leu
105 110 115

ctc ggc gtc tgg tat ctg atc atc aat gct gtg gta ctg ttg att tta Leu Gly Val Trp Tyr Leu Ile Ile Asn Ala Val Val Leu Leu Ile Leu 120 125 130	558
ttg agt gcc ctg gct gat ccg gat cag tat aac ttt tca agt tct gaa Leu Ser Ala Leu Ala Asp Pro Asp Gln Tyr Asn Phe Ser Ser Ser Glu 135 140 145 150	606
ctg gga ggt gac ttt gag ttc atg gat gat gcc aac atg tgc att gcc Leu Gly Gly Asp Phe Glu Phe Met Asp Asp Ala Asn Met Cys Ile Ala 155 160 165	654
att gcg att tct ctt ctc atg atc ctg ata tgt gct atg gct act tac Ile Ala Ile Ser Leu Leu Met Ile Leu Ile Cys Ala Met Ala Thr Tyr 170 175 180	702
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cag atc ttt gac ttt gcc ctg aac atg ttg gtt gca atc act gtg ctt Gln Ile Phe Asp Phe Ala Leu Asn Met Leu Val Ala Ile Thr Val Leu 200 205 210	798
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ttt ccc tac aga gat gat gtc atg tca gtg aat cct acc tgt ttg gtc Phe Pro Tyr Arg Asp Asp Val Met Ser Val Asn Pro Thr Cys Leu Val 235 240 245	894
ctt att att ctt ctg ttt att agc att atc ttg act ttt aag ggt tac Leu Ile Ile Leu Leu Phe Ile Ser Ile Ile Leu Thr Phe Lys Gly Tyr 250 255 260	942
ttg att agc tgt gtt tgg aac tgc tac cga tac atc aat ggt agg aac Leu Ile Ser Cys Val Trp Asn Cys Tyr Arg Tyr Ile Asn Gly Arg Asn 265 270 275	990
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ccg cca cct tac gtg tct gcc taa gccttcaagt gggcggagct gagggcagca Pro Pro Pro Tyr Val Ser Ala 315	1140
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tagttttcaa catatgcttt gctggaacac tgtgatagat taactgtaga attcttcctg	1320
tacgattggg gatataatgg gcttcactaa ccttccttag gcattgaaac ttcccccaa	1380
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<210> 61
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 <212> PRT
 <213> Homo sapiens

<400> 61

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Pro Ala Glu Ala Arg Ser Ser Arg Gly Ile Glu Glu Ala Gly Pro Arg
          35          40          45

Ala His Gly Arg Ala Gly Arg Glu Pro Glu Arg Arg Arg Ser Arg Gln
          50          55          60

Gln Arg Arg Gly Gly Leu Gln Ala Arg Arg Ser Thr Leu Leu Lys Thr
65          70          75          80

Cys Ala Arg Ala Arg Ala Thr Ala Pro Gly Ala Met Lys Met Val Ala
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Pro Trp Thr Arg Phe Tyr Ser Asn Ser Cys Cys Leu Cys Cys His Val
          100          105          110

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Arg Thr Gly Thr Ile Leu Leu Gly Val Trp Tyr Leu Ile Ile Asn Ala
115 120 125

Val Val Leu Leu Ile Leu Leu Ser Ala Leu Ala Asp Pro Asp Gln Tyr
130 135 140

Asn Phe Ser Ser Ser Glu Leu Gly Gly Asp Phe Glu Phe Met Asp Asp
145 150 155 160

Ala Asn Met Cys Ile Ala Ile Ala Ile Ser Leu Leu Met Ile Leu Ile
165 170 175

Cys Ala Met Ala Thr Tyr Gly Ala Tyr Lys Gln Arg Ala Ala Trp Ile
180 185 190

Ile Pro Phe Phe Cys Tyr Gln Ile Phe Asp Phe Ala Leu Asn Met Leu
195 200 205

Val Ala Ile Thr Val Leu Ile Tyr Pro Asn Ser Ile Gln Glu Tyr Ile
210 215 220

Arg Gln Leu Pro Pro Asn Phe Pro Tyr Arg Asp Asp Val Met Ser Val
225 230 235 240

Asn Pro Thr Cys Leu Val Leu Ile Ile Leu Leu Phe Ile Ser Ile Ile
245 250 255

Leu Thr Phe Lys Gly Tyr Leu Ile Ser Cys Val Trp Asn Cys Tyr Arg
260 265 270

Tyr Ile Asn Gly Arg Asn Ser Ser Asp Val Leu Val Tyr Val Thr Ser
275 280 285

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Gly Ala Ala Lys Glu Pro Pro Pro Pro Tyr Val Ser Ala
305 310 315

<210> 62
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<222> (65)..(1057)

<400> 62

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 Met Ser Asp Ser Glu Lys Leu Asn Leu Asp Ser Ile Ile Gly Arg
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ctg ctg gaa gtg cag ggc tcg cgg cct ggc aag aat gta cag ctg aca 157
 Leu Leu Glu Val Gln Gly Ser Arg Pro Gly Lys Asn Val Gln Leu Thr
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gag aac gag atc cgc ggt ctg tgc ctg aaa tcc cgg gag att ttt ctg 205
 Glu Asn Glu Ile Arg Gly Leu Cys Leu Lys Ser Arg Glu Ile Phe Leu
 35 40 45

agc cag ccc att ctt ctg gag ctg gag gca ccc ctc aag atc tgc ggt 253
 Ser Gln Pro Ile Leu Leu Glu Leu Glu Ala Pro Leu Lys Ile Cys Gly
 50 55 60

gac ata cac ggc cag tac tac gac ctt ctg cga cta ttt gag tat ggc 301
 Asp Ile His Gly Gln Tyr Tyr Asp Leu Leu Arg Leu Phe Glu Tyr Gly
 65 70 75

ggt ttc cct ccc gag agc aac tac ctc ttt ctg ggg gag tat gtg gac 349
 Gly Phe Pro Pro Glu Ser Asn Tyr Leu Phe Leu Gly Asp Tyr Val Asp
 80 85 90 95

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 Arg Gly Lys Gln Ser Leu Glu Thr Ile Cys Leu Leu Leu Ala Tyr Lys
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atc aag tac ccc gag aac ttc ttc ctg ctc cgt ggg aac cac gag tgt 445
 Ile Lys Tyr Pro Glu Asn Phe Phe Leu Leu Arg Gly Asn His Glu Cys
 115 120 125

gcc agc atc aac cgc atc tat ggt ttc tac gat gag tgc aag aga cgc 493
 Ala Ser Ile Asn Arg Ile Tyr Gly Phe Tyr Asp Glu Cys Lys Arg Arg
 130 135 140

tac aac atc aaa ctg tgg aaa acc ttc act gac tgc ttc aac tgc ctg 541
 Tyr Asn Ile Lys Leu Trp Lys Thr Phe Thr Asp Cys Phe Asn Cys Leu
 145 150 155

ccc atc gcg gcc ata gtg gag gaa aag atc ttc tgc tgc cac gga ggc 589
 Pro Ile Ala Ala Ile Val Asp Glu Lys Ile Phe Cys Cys His Gly Gly
 160 165 170 175

ctg tcc ccg gac ctg cag tct atg gag cag att cgg cgg atc atg cgg 637
 Leu Ser Pro Asp Leu Gln Ser Met Glu Gln Ile Arg Arg Ile Met Arg
 180 185 190

ccc aca gat gtg cct gac cag ggc ctg ctg tgt gac ctg ctg tgg tct 685
 Pro Thr Asp Val Pro Asp Gln Gly Leu Leu Cys Asp Leu Leu Trp Ser
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gac cct gac aag gac gtg cag ggc tgg ggc gag aac gac cgt ggc gtc 733
 Asp Pro Asp Lys Asp Val Gln Gly Trp Gly Glu Asn Asp Arg Gly Val
 210 215 220

tct ttt acc ttt gga gcc gag gtg gtg gcc aag ttc ctc cac aag cac 781
 Ser Phe Thr Phe Gly Ala Glu Val Val Ala Lys Phe Leu His Lys His
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Glu	Phe	Phe	Ala	Lys	Arg	Gln	Leu	Val	Thr	Leu	Phe	Ser	Ala	Pro	Asn	
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Tyr	Cys	Gly	Glu	Phe	Asp	Asn	Ala	Gly	Ala	Met	Met	Ser	Val	Asp	Glu	
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acc	ctc	atg	tgc	tct	ttc	cag	atc	ctc	aag	ccc	gcc	gac	aag	aac	aag	973
Thr	Leu	Met	Cys	Ser	Phe	Gln	Ile	Leu	Lys	Pro	Ala	Asp	Lys	Asn	Lys	
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Gly	Lys	Tyr	Gly	Gln	Phe	Ser	Gly	Leu	Asn	Pro	Gly	Gly	Arg	Pro	Ile	
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acc	cca	ccc	cgc	aat	tcc	gcc	aaa	gcc	aag	aaa	tag	cccccg	caca			1067
Thr	Pro	Pro	Arg	Asn	Ser	Ala	Lys	Ala	Lys	Lys						
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aaaaaaaaaa	aaaaaaaaaa	aaaaaa														1453

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35 40 45

Gln Pro Ile Leu Leu Glu Leu Glu Ala Pro Leu Lys Ile Cys Gly Asp
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Ile His Gly Gln Tyr Tyr Asp Leu Leu Arg Leu Phe Glu Tyr Gly Gly
Page 141

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Gly Lys Gln Ser Leu Glu Thr Ile Cys Leu Leu Leu Ala Tyr Lys Ile
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Lys Tyr Pro Glu Asn Phe Phe Leu Leu Arg Gly Asn His Glu Cys Ala
115         120         125
Ser Ile Asn Arg Ile Tyr Gly Phe Tyr Asp Glu Cys Lys Arg Arg Tyr
130         135         140
Asn Ile Lys Leu Trp Lys Thr Phe Thr Asp Cys Phe Asn Cys Leu Pro
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Ile Ala Ala Ile Val Asp Glu Lys Ile Phe Cys Cys His Gly Gly Leu
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Ser Pro Asp Leu Gln Ser Met Glu Gln Ile Arg Arg Ile Met Arg Pro
180         185         190
Thr Asp Val Pro Asp Gln Gly Leu Leu Cys Asp Leu Leu Trp Ser Asp
195         200         205
Pro Asp Lys Asp Val Gln Gly Trp Gly Glu Asn Asp Arg Gly Val Ser
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Phe Thr Phe Gly Ala Glu Val Val Ala Lys Phe Leu His Lys His Asp
225         230         235         240
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245         250         255
Phe Phe Ala Lys Arg Gln Leu Val Thr Leu Phe Ser Ala Pro Asn Tyr
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Cys Gly Glu Phe Asp Asn Ala Gly Ala Met Met Ser Val Asp Glu Thr
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 185 190 195

cat ttg agc gtc aac gat ctc cca gtg ggc cga agc gtg gaa gaa acc 679
 His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser Val Glu Glu Thr
 200 205 210

ctc cgc ttg gtg aag gcg ttc cag tat gta gaa aca cat gga gaa gtc 727
 Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr His Gly Glu Val
 215 220 225

tgc cca gcg aac tgg aca ccg gat tct cct acg atc aag cca agt cca 775
 Cys Pro Ala Asn Trp Thr Pro Asp Ser Pro Thr Ile Lys Pro Ser Pro
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gct gct tcc aaa gag tac ttt cag aag gta aat cag tag atcacccatg 824
 Ala Ala Ser Lys Glu Tyr Phe Gln Lys Val Asn Gln
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gatccctcat ccctgaaatt gagtttatgt agtcatttta cttattttat tcattagcta 1424

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 20 25 30

Ala Ala Cys Gly Arg Thr Ser Leu Thr Asn Leu Leu Cys Ser Gly Ser
 Page 144

35

Ser Gln Ala Lys Leu Phe Ser Thr Ser Ser Ser Cys His Ala Pro Ala
50 55 60
Val Thr Gln His Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn Gly
65 70 75 80
Glu Phe Lys Asp Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu Val
85 90 95
Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile
100 105 110
Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys Glu
115 120 125
Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp Ile
130 135 140
Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Ala Leu
145 150 155 160
Leu Ser Asp Leu Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu Leu
165 170 175
Glu Gly Ser Gly Leu Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro Asn
180 185 190
Gly Val Ile Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser
195 200 205
Val Glu Glu Thr Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr
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Phe Met Pro Val Leu Gly Phe Gly Thr Tyr Ala Pro Pro Glu Val Pro
15 20 25 30aga agt aaa gct ttg gag gtc aca aaa tta gca ata gaa gct ggg ttc 207
Arg Ser Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe
35 40 45cgc cat ata gat tct gct cat tta tac aat aat gag gag cag gtt gga 255
Arg His Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly
50 55 60ctg gcc atc cga agc aag att gca gat ggc agt gtg aag aga gaa gac 303
Leu Ala Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp
65 70 75ata ttc tac act tca aag ctt tgg tcc act ttt cat cga cca gag ttg 351
Ile Phe Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg Pro Glu Leu
80 85 90gtc cga cca gcc ttg gaa aac tca ctg aag aaa gct caa ttg gac tat 399
Val Arg Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln Leu Asp Tyr
95 100 105 110gtt gac ctc tat ctt att cat tct cca atg tct cta aag cca ggt gag 447
Val Asp Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys Pro Gly Glu
115 120 125gaa ctt tca cca aca gat gaa aat gga aaa gta ata ttt gac ata gtg 495
Glu Leu Ser Pro Thr Asp Glu Asn Gly Lys Val Ile Phe Asp Ile Val
130 135 140gat ctc tgt acc acc tgg gag gcc atg gag aag tgt aag gat gca gga 543
Asp Leu Cys Thr Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly
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Leu Ala Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu
160 165 170atg atc ctc aac aag cca gga ctc aag tac aag cct gtc tgc aac cag 639
Met Ile Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln
175 180 185 190gta gaa tgt cat ccg tat ttc aac cgg agt aaa ttg cta gat ttc tgc 687
Val Glu Cys His Pro Tyr Phe Asn Arg Ser Lys Leu Leu Asp Phe Cys
195 200 205aag tcg aaa gat att gtt ctg gtt gcc tat agt gct ctg gga tct caa 735
Lys Ser Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser Gln
210 215 220cga gac aaa cga tgg gtg gac ccg aac tcc ccg gtg ctc ttg gag gac 783
Arg Asp Lys Arg Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp

225

cca gtc ctt tgt gcc ttg gca aaa aag cac aag cga acc cca gcc ctg 831
Pro Val Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu
240 245 250

att gcc ctg cgc tac cag ctg cag cgt ggg gtt gtg gtc ctg gcc aag 879
Ile Ala Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys
255 260 265 270

agc tac aat gag cag cgc atc aga cag aac gtg cag gtt ttt gag ttc 927
Ser Tyr Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe
275 280 285

cag ttg act gca gag gac atg aaa gcc ata gat ggc cta gac aga aat 975
Gln Leu Thr Ala Glu Asp Met Lys Ala Ile Asp Gly Leu Asp Arg Asn
290 295 300

ctc cac tat ttt aac agt gat agt ttt gct agc cac cct aat tat cca 1023
Leu His Tyr Phe Asn Ser Asp Ser Phe Ala Ser His Pro Asn Tyr Pro
305 310 315

tat tca gat gaa tat taa catggagggc tttgcctgat gtctaccaga 1071
Tyr Ser Asp Glu Tyr
320

agccctgtgt gtggatggtg acgcagagga cgtctctatg ccggtgactg gacatatcac 1131

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Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu Ala Gly Phe Arg His
35 40 45

Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu Gln Val Gly Leu Ala
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Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys Arg Glu Asp Ile Phe
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Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg Pro Glu Leu Val Arg
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2007-06-23 1254-0326PUS1.ST251

Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln Leu Asp Tyr Val Asp
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Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys Pro Gly Glu Glu Leu
115 120 125

Ser Pro Thr Asp Glu Asn Gly Lys Val Ile Phe Asp Ile Val Asp Leu
130 135 140

Cys Thr Thr Trp Glu Ala Met Glu Lys Cys Lys Asp Ala Gly Leu Ala
145 150 155 160

Lys Ser Ile Gly Val Ser Asn Phe Asn Arg Arg Gln Leu Glu Met Ile
165 170 175

Leu Asn Lys Pro Gly Leu Lys Tyr Lys Pro Val Cys Asn Gln Val Glu
180 185 190

Cys His Pro Tyr Phe Asn Arg Ser Lys Leu Leu Asp Phe Cys Lys Ser
195 200 205

Lys Asp Ile Val Leu Val Ala Tyr Ser Ala Leu Gly Ser Gln Arg Asp
210 215 220

Lys Arg Trp Val Asp Pro Asn Ser Pro Val Leu Leu Glu Asp Pro Val
225 230 235 240

Leu Cys Ala Leu Ala Lys Lys His Lys Arg Thr Pro Ala Leu Ile Ala
245 250 255

Leu Arg Tyr Gln Leu Gln Arg Gly Val Val Val Leu Ala Lys Ser Tyr
260 265 270

Asn Glu Gln Arg Ile Arg Gln Asn Val Gln Val Phe Glu Phe Gln Leu
275 280 285

Thr Ala Glu Asp Met Lys Ala Ile Asp Gly Leu Asp Arg Asn Leu His
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Tyr Phe Asn Ser Asp Ser Phe Ala Ser His Pro Asn Tyr Pro Tyr Ser
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Met Asn Trp Glu Cys Ala Ile Pro Gly Lys Lys Gly Thr Pro Trp Glu
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Gly Gly Leu Phe Lys Leu Arg Met Leu Phe Lys Asp Asp Tyr Pro Ser
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Ser Pro Pro Lys Cys Lys Phe Glu Pro Pro Leu Phe His Pro Asn Val
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Tyr Pro Ser Gly Thr Val Cys Leu Ser Ile Leu Glu Glu Asp Lys Asp
90 95 100

tgg agg cca gcc atc aca atc aaa cag atc cta tta gga ata cag gaa 390
Trp Arg Pro Ala Ile Thr Ile Lys Gln Ile Leu Leu Gly Ile Gln Glu
105 110 115

ctt cta aat gaa cca aat atc caa gac cca gct caa gca gag gcc tac 438
Leu Leu Asn Glu Pro Asn Ile Gln Asp Pro Ala Gln Ala Glu Ala Tyr
120 125 130

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Thr Ile Tyr Trp Leu Val Ala Ala Leu Ala Pro Leu Val Ala Ala Pro
135 140 145 150

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Pro Arg Pro Ser Gln Gly Arg Leu Ala Gly Arg Glu Trp Ser Thr Gln
155 160 165

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Ala His Pro Arg Asp Ser Gln Gly Pro Arg Leu Cys Gly Glu Gly Arg
170 175 180

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Gly Ala

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Asp Gly Thr Met Asn Leu Met Asn Trp Glu Cys Ala Ile Pro Gly Lys
35 40 45

Lys Gly Thr Pro Trp Glu Gly Gly Leu Phe Lys Leu Arg Met Leu Phe
50 55 60

Lys Asp Asp Tyr Pro Ser Ser Pro Pro Lys Cys Lys Phe Glu Pro Pro
65 70 75 80

Leu Phe His Pro Asn Val Tyr Pro Ser Gly Thr Val Cys Leu Ser Ile
85 90 95

Leu Glu Glu Asp Lys Asp Trp Arg Pro Ala Ile Thr Ile Lys Gln Ile
100 105 110

Leu Leu Gly Ile Gln Glu Leu Leu Asn Glu Pro Asn Ile Gln Asp Pro
115 120 125

Ala Gln Ala Glu Ala Tyr Thr Ile Tyr Trp Leu Val Ala Ala Leu Ala
130 135 140

Pro Leu Val Ala Ala Pro Pro Arg Pro Ser Gln Gly Arg Leu Ala Gly
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Met Gln Arg Arg Trp
1 5

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Val Phe Val Leu Leu Asp Val Leu Cys Leu Leu Val Ala Ser Leu Pro
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Phe Ala Ile Leu Thr Leu Val Asn Ala Pro Tyr Lys Arg Gly Phe Tyr
25 30 35

tgc ggg gat gac tcc atc cgg tac ccc tac cgt cca gat acc atc acc 258
Cys Gly Asp Asp Ser Ile Arg Tyr Pro Tyr Arg Pro Asp Thr Ile Thr
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cac ggg ctc atg gct ggg gtc acc atc acg gcc acc gtc atc ctt gtc 306
His Gly Leu Met Ala Gly Val Thr Ile Thr Ala Thr Val Ile Leu Val
55 60 65

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Page 151

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tgc Cys 150	agg Arg	gga Gly	aac Asn	cct Pro	gct Ala 155	gat Asp	gtc Val	acc Thr	gag Glu	gcc Ala 160	agg Arg	ttg Leu	tct Ser	ttc Phe	tac Tyr 165	594				
tcg Ser	gga Gly	cac His	tct Ser	tcc Ser 170	ttt Phe	ggg Gly	atg Met	tac Tyr	tgc Cys 175	atg Met	gtg Val	ttc Phe	ttg Leu	gcg Ala 180	ctg Leu	642				
tat Tyr	gtg Val	cag Gln	gca Ala 185	cga Arg	ctc Leu	tgt Cys	tgg Trp	aag Lys 190	tgg Trp	gca Ala	cgg Arg	ctg Leu	ctg Leu 195	cga Arg	ccc Pro	690				
aca Thr	gtc Val	cag Gln 200	ttc Phe	ttc Phe	ctg Leu	gtg Val	gcc Ala 205	ttt Phe	gcc Ala	ctc Leu	tac Tyr	gtg Val 210	ggc Gly	tac Tyr	acc Thr	738				
cgc Arg	gtg Val 215	tct Ser	gat Asp	tac Tyr	aaa Lys	cac His 220	cac His	tgg Trp	agc Ser	gat Asp	gtc Val 225	ctt Leu	gtt Val	ggc Gly	ctc Leu	786				
ctg Leu 230	cag Gln	ggg Gly	gca Ala	ctg Leu	gtg Val 235	gct Ala	gcc Ala	ctc Leu	act Thr	gtc Val 240	tgc Cys	tac Tyr	atc Ile	tca Ser	gac Asp 245	834				
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gaa Glu	cgg Arg	aag Lys	ccc Pro 265	agc Ser	ctg Leu	tca Ser	ctg Leu	acg Thr 270	ttg Leu	acc Thr	ctg Leu	ggc Gly 275	gag Glu	gct Ala	gac Asp	930				
cac His	aac Asn	cac His 280	tat Tyr	gga Gly	tac Tyr	ccg Pro	cac His 285	tcc Ser	tcc Ser	tcc Ser	tga	ggccggaccc				976				
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<212> PRT

<213> Homo sapiens

<400> 71

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Lys Arg Gly Phe Tyr Cys Gly Asp Asp Ser Ile Arg Tyr Pro Tyr Arg
35 40 45

Pro Asp Thr Ile Thr His Gly Leu Met Ala Gly Val Thr Ile Thr Ala
50 55 60

Thr Val Ile Leu Val Ser Ala Gly Glu Ala Tyr Leu Val Tyr Thr Asp
65 70 75 80

Arg Leu Tyr Ser Arg Ser Asp Phe Asn Asn Tyr Val Ala Ala Val Tyr
85 90 95

Lys Val Leu Gly Thr Phe Leu Phe Gly Ala Ala Val Ser Gln Ser Leu
100 105 110

Thr Asp Leu Ala Lys Tyr Met Ile Gly Arg Leu Arg Pro Asn Phe Leu
115 120 125

Ala Val Cys Asp Pro Asp Trp Ser Arg Val Asn Cys Ser Val Tyr Val
130 135 140

Gln Leu Glu Lys Val Cys Arg Gly Asn Pro Ala Asp Val Thr Glu Ala
145 150 155 160

Arg Leu Ser Phe Tyr Ser Gly His Ser Ser Phe Gly Met Tyr Cys Met
165 170 175

Val Phe Leu Ala Leu Tyr Val Gln Ala Arg Leu Cys Trp Lys Trp Ala
180 185 190

Arg Leu Leu Arg Pro Thr Val Gln Phe Phe Leu Val Ala Phe Ala Leu
195 200 205

Tyr Val Gly Tyr Thr Arg Val Ser Asp Tyr Lys His His Trp Ser Asp
210 215 220

Val Leu Val Gly Leu Leu Gln Gly Ala Leu Val Ala Ala Leu Thr Val
225 230 235 240

Cys Tyr Ile Ser Asp Phe Phe Lys Ala Arg Pro Pro Gln His Cys Leu
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Met Asn Arg Glu Gly Ala Pro
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Gly Lys Ser Pro Glu Glu Met Tyr Ile Gln Gln Lys Val Arg Val Leu
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ctc atg ctg cgg aag atg gga tca aac ctg aca gcc agc gag gag gag 390
Leu Met Leu Arg Lys Met Gly Ser Asn Leu Thr Ala Ser Glu Glu Glu
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ttc ctg cgc acc tat gca ggg gtg gtc aac agc cag ctc agc cag ctg 438
Phe Leu Arg Thr Tyr Ala Gly Val Val Asn Ser Gln Leu Ser Gln Leu
40 45 50 55

cct ccg cac tcc atc gac cag ggt gca gag gac gtg gtg atg gcg ttt 486
Page 154

Pro Pro His Ser Ile Asp Gln Gly Ala Glu Asp Val Val Met Ala Phe
 60 65 70

tcc agg tcg gag acg gaa gac cgg agg cag tag ctgcaaagcc cttggaacac 539
 Ser Arg Ser Glu Thr Glu Asp Arg Arg Gln
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<213> Homo sapiens

<400> 73

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Gln Gln Lys Val Arg Val Leu Leu Met Leu Arg Lys Met Gly Ser Asn
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Leu Thr Ala Ser Glu Glu Glu Phe Leu Arg Thr Tyr Ala Gly Val Val
35 40 45

Asn Ser Gln Leu Ser Gln Leu Pro Pro His Ser Ile Asp Gln Gly Ala
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Glu Asp Val Val Met Ala Phe Ser Arg Ser Glu Thr Glu Asp Arg Arg
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Gln

<210> 74
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<212> DNA
<213> Homo sapiens

Page 157

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Ser	Pro	Ala	Gln	Glu	Ala	Leu	Asp	Leu	Leu	Phe	Asn	Cys	Glu	Ser	Thr	
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Leu	Ala	Leu	Phe	Asp	Pro	Phe	Ser	Lys	Gly	Asp	Pro	Leu	Pro	Ala	Arg	
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Gln	Glu	Gly	Val	Lys	Lys	Lys	Ala	Ala	Glu	Tyr	Leu	Lys	Arg	Ala	Glu	
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gag	atc	ctg	cgc	ctg	cac	ctg	tct	caa	ctc	cca	ccc	taa	cagggagtg			1366
Glu	Ile	Leu	Arg	Leu	His	Leu	Ser	Gln	Leu	Pro	Pro					
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 <211> 255
 <212> PRT
 <213> Homo sapiens

<400> 75

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Asp Pro Arg Thr His Pro Lys Gly Tyr Thr Glu Tyr Lys Val Thr Ala
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Gln Phe Ile Ser Lys Lys Asp Pro Glu Asp Val Lys Glu Val Val Val
35 40 45

Trp Lys Arg Tyr Ser Asp Phe Arg Lys Leu His Gly Asp Leu Ala Tyr
50 55 60

Thr His Arg Asn Leu Phe Arg Arg Leu Glu Glu Phe Pro Ala Phe Pro
65 70 75 80

Arg Ala Gln Val Phe Gly Arg Phe Glu Ala Ser Val Ile Glu Glu Arg
85 90 95

Arg Lys Gly Ala Glu Asp Leu Leu Arg Phe Thr Val His Ile Pro Ala
100 105 110

Leu Asn Asn Ser Pro Gln Leu Lys Glu Phe Phe Arg Gly Gly Glu Val
115 120 125

Thr Arg Pro Leu Glu Val Ser Arg Asp Leu His Ile Leu Pro Pro Pro
130 135 140

Leu Ile Pro Thr Pro Pro Pro Asp Asp Pro Arg Leu Ser Gln Leu Leu
145 150 155 160

Pro Ala Glu Arg Arg Gly Leu Glu Glu Leu Glu Val Pro Val Asp Pro
165 170 175

Pro Pro Ser Ser Pro Ala Gln Glu Ala Leu Asp Leu Leu Phe Asn Cys
180 185 190

Glu Ser Thr Glu Glu Ala Ser Gly Ser Pro Ala Arg Gly Pro Leu Thr
195 200 205

Glu Ala Glu Leu Ala Leu Phe Asp Pro Phe Ser Lys Gly Asp Pro Leu
210 215 220

Pro Ala Arg Gln Glu Gly Val Lys Lys Lys Ala Ala Glu Tyr Leu Lys
225 230 235 240

Arg Ala Glu Glu Ile Leu Arg Leu His Leu Ser Gln Leu Pro Pro
Page 159

245

2007-06-23 1254-0326PUS1.ST251
250 255